

UNIVERZA V LJUBLJANI  
NARAVOSLOVNOTEHNIŠKA FAKULTETA

ODDELEK ZA TEKSTILSTVO, GRAFIKO IN OBLIKOVANJE  
KATEDRA ZA TEKSTILNO IN OBLAČILNO INŽENIRSTVO

UNIVERZITETNI ŠTUDIJSKI PROGRAM 1. STOPNJE

# **NAČRTOVANJE TEKSTILIJ IN OBLAČIL**

ŠTUDIJSKO LETO 2018/19

# PODATKI ŠTUDIJSKEGA PROGRAMA NAČRTOVANJE TEKSTILIJ IN OBLAČIL

## Osnovni podatki

|                              |                                                                                                                                                    |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Ime programa                 | <b>Načrtovanje tekstilij in oblačil</b>                                                                                                            |
| Lastnosti programa           |                                                                                                                                                    |
| Vrsta                        | univerzitetni                                                                                                                                      |
| Stopnja                      | prva stopnja                                                                                                                                       |
| KLASIUS-SRV                  | Visokošolsko univerzitetno izobraževanje (prva bolonjska stopnja)/visokošolska univerzitetna izobrazba (prva bolonjska stopnja) (16204)            |
| ISCED                        | <ul style="list-style-type: none"> <li>• proizvodne tehnologije (54)</li> </ul>                                                                    |
| KLASIUS-P                    | <ul style="list-style-type: none"> <li>• Tekstilna, konfekcijska, čevljarska in usnjarska tehnologija (podrobneje neopredeljeno) (5420)</li> </ul> |
| KLASIUS-P-16                 | <ul style="list-style-type: none"> <li>• Tekstilna, oblačilna, čevljarska in usnjarska tehnologija (0723)</li> </ul>                               |
| Frascati                     | <ul style="list-style-type: none"> <li>• Tehniške vede (2)</li> </ul>                                                                              |
| Raven SOK                    | Raven SOK 7                                                                                                                                        |
| Raven EOK                    | Raven EOK 6                                                                                                                                        |
| Raven EOVK                   | Prva stopnja                                                                                                                                       |
| Področja/moduli/smeri        | <ul style="list-style-type: none"> <li>• Ni členitve (študijski program)</li> </ul>                                                                |
| Članice Univerze v Ljubljani | <ul style="list-style-type: none"> <li>• Naravoslovnotehniška fakulteta, Aškerčeva cesta 12, 1000 Ljubljana, Slovenija</li> </ul>                  |
| Trajanje (leta)              | 3                                                                                                                                                  |
| Število KT na letnik         | 60                                                                                                                                                 |
| Načini izvajanja študija     | redni, izredni                                                                                                                                     |

## Temeljni cilji programa

Evropska in z njo tudi slovenska tekstilna in oblačilna industrija je v času popolne sprostitev trgovine s tekstilnimi izdelki pred pomembnimi razvojnimi izzivi. Njen prihodnji položaj bo odvisen od ukrepov, ki bodo povečevali njeno konkurenčno prednost. Več bo morala vlagati v raziskave in razvoj, vzpodbujati inovacije in voditi ustrezno kadrovske politiko. V slovenski tekstilni in oblačilni industriji je kadrovska situacija še posebno pereča tudi zaradi popolnega razpada srednješolskega izobraževanja v stroki, najprej na področju primarne tekstilne industrije, sedaj pa tudi na področju oblačilne industrije.

Analize, ki so bile opravljene v okviru EU kažejo, da ima tekstilna industrija prihodnost tudi v razvitih ekonomijah, seveda pod določenimi pogoji. Prihodnost lahko gradi zgolj v opuščanju masovnih izdelkov, ki jih nadomešča s tekstilnimi in oblačilnimi izdelki z visoko dodano vrednostjo, visoke kakovosti, vrhunskega oblikovanja, kreativnih izdelkih prihodnosti, tehničnih izdelkih, medicinskih tekstilijah, inteligentnih tekstilijah in podobno. Poleg drugih ukrepov so cilji tesno povezani z ustreznim znanjem in vrhunsko usposobljenostjo strokovnega kadra, ki ima veščine in spretnosti za oblikovanje, inženirsko načrtovanje in proizvodnjo inovativnih izdelkov, ki bodo

zadovoljevali zahteve in potrebe najzahtevnejših kupcev. Končni cilj takšne usmeritve je izdelovati izdelke, ki bodo v vseh pogledih presegali zahteve kupcev in bodo napovedovali njihove prihodnje potrebe in zahteve.

Temeljni cilj univerzitetnega študijskega programa Načrtovanje tekstilij in oblačil je usposobiti strokovnjaka, ki bo sposoben voditi tehnološko najzahtevnejše procese v tekstilni in oblačilni industriji ter ga usposobiti za načrtovanje zahtevnih izdelkov in tehnoloških procesov in mu obenem dati ustrezna temeljna naravoslovna in strokovna znanja za nadaljevanje izobraževanja na drugi stopnji.

Skladno s principi bolonjskega procesa, pomeni program, v primerjavi s sedanjimi, odmik od filozofije poučevanja s sicer korektnim nizanem različnih tehnologij položenih na izbrane naravoslovne vsebine. Privzeta je filozofija učenja, v kateri so poleg osvojenih znanj pomembne tudi druge kompetence diplomantov, njihove veščine in spretnosti, v tem primeru s poudarkom na osvajanju teoretičnih osnov hitro razvijajočih tehnologij na področju primarne tekstilne proizvodnje in oblačilne industrije. Pomembna sestavina programa je razvijanje zavedanja in navajanje študentov na nujnost stalnega dodatnega izobraževanja ter razvijanje veščin uporabe IKT tehnologije, informacijskih virov, poklicne in etične odgovornosti ter privzemanje skupinskega dela.

## **Splošne kompetence (učni izidi)**

- strokovno znanje pridobljeno s študijem teoretičnih in metodoloških konceptov,
- usposobljenost za prenos in uporabo teoretičnega znanja v prakso in reševanje problemov, zlasti z iskanjem novih virov znanja in uporabo znanstvenih metod,
- sposobnost eksperimentiranja in vizualnega posredovanja različnih miselnih konceptov,
- razvita sposobnost lastnega učenja na svojem strokovnem področju,
- iniciativnost in samostojnost pri odločanju ter vodenju najzahtevnejšega dela,
- sposobnost komuniciranja s sodelavci in strokovnjaki sorodnih disciplin, ki mu omogoča aktivno sodelovanje pri skupinskem delu, tudi na področju projektov, ki temelje na povezovanju strokovnih zakonitosti z oblikovalsko prakso,
- razvita profesionalna etična in okoljska odgovornost,
- sposobnost uporabe sodobnih orodij, veščin in spretnosti, predvsem s področja IKT tehnologij v vsakdanjem strokovnem delu.

## **Predmetnospecifične kompetence (učni izidi)**

- poglobljena znanja matematike fizike in kemije z razvito sposobnostjo naravoslovnega mišljenja,
- teoretično znanje, ki omogoča sposobnost presoje in povezave lastnosti vlaken z njihovo morfološko strukturo, oziroma njeno spremembo v času tehnološke predelave vlaken,
- razumevanje interdisciplinarnosti razvoja sodobnih vlaknotvornih polimerov z združitvijo različnih znanstvenih disciplin: kemije, bio(tehno)logije, nanotehnologije, informatike z namenom ustvariti odzivne in inteligentne vlaknotvorne polimere,
- sposobnost povezovanja vpliva različnih surovin in tehnoloških dejavnikov na strukturo in lastnosti predivne preje, tkanin, pletenin in vlaknovin,
- spoznavanje temeljnih tkalskih in pletenih struktur; lastnostmi, ki iz njih izvirajo, njih prednosti in pomanjkljivosti,
- sposobnost optimaliziranja tehnoloških postopkov izdelave oblačil s prenosom teoretičnega znanja v prakso in doseganje večje kakovosti končnih izdelkov,
- poznavanje teoretičnih osnov plemenitenja, ki so podlaga za samostojno ustvarjalno raziskovalno delo na področjih barvanja, tiskanja, apretiranja in nege tekstilij,
- sposobnost načrtovanja predplemenitilnih, barvalnih, tiskarskih in apreturnih procesov glede na konstrukcijske značilnosti tekstilij in upoštevanjem okoljskih zahtev,
- obvladovanje računalniškega vzorčenja prej, tkanin, pletiv, pletenin in vzorcev za tisk,

- sposobnost nadziranja, analiziranja in vodenja proizvodnega procesa, sposobnost načrtovanja in planiranja proizvodnega procesa z uporabo metod mrežnega planiranja ter prepoznavanja možnosti uvedbe računalniških aplikacij v proizvodnem procesu ter njihovo vrednotenje s stališča stroškov in humanizacije dela,
- sposobnost razumevanja sodobnih konceptov sistemov vodenja kakovosti in njihov pomen v kontekstu svetovne konkurenčnosti.

## Pogoji za vpis

V program se lahko vpiše::

- a) kdor je opravil maturo,
- b) kdor je opravil poklicno maturo v kateremkoli srednješolskem programu in izpit iz enega od maturitetnih predmetov; izbrani predmet ne sme biti predmet, ki ga je kandidat že opravil pri poklicni maturi,
- c) kdor je pred 1. 6. 1995 končal katerikoli štiriletni srednješolski program.

## Merila za izbiro ob omejitvi vpisa

V primeru omejitve vpisa bodo kandidati iz točk a) in c) izbrani glede na:

- splošni uspeh pri maturi oziroma zaključnem izpitu 60 % točk,
- splošni uspeh v 3. in 4. letniku 40 % točk;

kandidati iz točke b) izbrani glede na:

- splošni uspeh pri poklicni maturi 40 % točk,
- splošni uspeh v 3. in 4. letniku 40 % točk,
- uspeh pri maturitetnem predmetu 20 % točk.

## Merila za priznavanje znanja in spretnosti, pridobljenih pred vpisom v program

Študentu se lahko priznajo znanja, ki po vsebini ustrezajo učnim vsebinam predmetov v programu Načrtovanje tekstilij in oblačil, pridobljena v različnih oblikah izobraževanja. O priznavanju znanj in spretnosti pridobljenih pred vpisom odloča Študijska komisija NTF, na podlagi pisne vloge študenta, priloženih spričeval in drugih listin, ki dokazujejo uspešno pridobljeno znanje ter vsebino teh znanj.

Pri priznavanju znanja, pridobljenega pred vpisom, bo Študijska komisija upoštevala naslednja merila:

- ustreznost pogojev za pristop v različne oblike izobraževanja (zahtevana predhodna izobrazba za vključitev v izobraževanje),
- primerljivost obsega izobraževanja (število ur predhodnega izobraževanja glede na obseg predmeta), pri katerem se obveznost priznava,
- ustreznost vsebine izobraževanja glede na vsebino predmeta, pri katerem se obveznost priznava.

Pridobljena znanja se lahko priznajo kot opravljena obveznost, če je bil pogoj za vključitev v izobraževanje skladen s pogoji za vključitev v program Načrtovanje tekstilij in oblačil, če je predhodno izobraževanje obsegalo najmanj 75 % obsega predmeta in najmanj 75 % vsebin ustreza vsebinam predmeta pri katerem se priznava študijska obveznost. V primeru, da komisija ugotovi, da se pridobljeno znanje lahko prizna, se to ovrednoti z enakim številom točk po ECTS, kot znaša število kreditnih točk pri predmetu.

## Načini ocenjevanja

Načini ocenjevanja so skladni s Statutom UL in navedeni v učnih načrtih.

## Pogoji za napredovanje po programu

Študenti morajo imeti za vpis v višji letnik potrjen predhodni letnik s frekvencami iz vseh predmetov, opravljene vse vaje in za vpis v posamezni letnik naslednje število kreditnih točk po ECTS:

- za vpis v 2. letnik doseženih najmanj 54 kreditnih točk po ECTS,
- za vpis v 3. letnik doseženih 60 kreditnih točk prvega letnika in najmanj 54 kreditnih točk po ECTS drugega letnika.

Študijska komisija NTF lahko izjemoma odobri napredovanje v višji letnik študentu, ki je v predhodnem letniku dosegel najmanj 42 kreditnih točk po ECTS, če ima za to opravičljive razloge. Za opravičene razloge štejejo razlogi navedeni v Statutu Univerze v Ljubljani.

Študenti morajo imeti za ponavljanje:

- 1. letnika opravljene vse vaje in doseženih najmanj 28 kreditnih točk po ECTS,
- 2. letnika opravljene vse vaje in doseženih najmanj 28 kreditnih točk po ECTS.

Študent lahko v času študija enkrat ponavlja letnik ali enkrat spremeni študijski program zaradi neizpolnitve obveznosti v prejšnjem študijskem programu.

## Pogoji za prehajanje med programi

Za prehod med študijskimi programi šteje prenehanje študentovega izobraževanja v študijskem programu, v katerega se je vpisal, in nadaljevanje izobraževanja v novem študijskem programu.

Pri prehodih med programi se upoštevajo naslednja merila:

- izpolnjevanje pogojev za vpis v novi študijski program,
- obseg razpoložljivih mest,
- letniki ali semestri v prejšnjem študijskem programu, v katerih je študent opravil vse študijske obveznosti, in ki se lahko priznajo v celoti,
- minimalno število letnikov ali semestrov, ki jih mora študent opraviti, če želi diplomirati v novem programu

### Prehodi iz višješolskih strokovnih študijskih programov.

Prehodi iz višješolskih strokovnih študijskih programov niso predvideni.

### Prehodi iz visokošolskih strokovnih študijskih programov.

Možen je prehod iz visokošolskega strokovnega študijskega programa Proizvodnja tekstilij in oblačil, če so izpolnjeni pogoji za vpis v univerzitetni študijski program Načrtovanje tekstilij in oblačil. Pri prehodu mora kandidat opraviti obveznosti iz Matematike 1, Fizike, Kemije 1, Kemije 2 in diferencialni izpit iz Vlakn v skupnem obsegu 42 ECTS kreditnih točk. Pri prehodu se upoštevajo kreditne točke v predhodnem programu katerim se prištejejo dodatno zahtevane kreditne točke in se na podlagi tega določi v kateri letnik lahko študent prehaja.

### **Prehodi iz univerzitetnih študijskih programov.**

Možen je prehod iz sedanjega univerzitetnega študijskega programa Tekstilstvo in grafična tehnologija, smer Tekstilstvo. Pri prehodu se upoštevajo kreditne točke ECTS dosežene v predhodnem programu in se na podlagi tega določi v kateri letnik lahko študent prehaja.

Prehodi so možni tudi iz vseh univerzitetnih študijskih programov s področja tekstilstva na univerzah, ki so vključene v mrežo AUTEX. Pri prehodu se upoštevajo kreditne točke ECTS dosežene v predhodnem programu in se na podlagi tega določi v kateri letnik lahko študent prehaja.

O prehodih med programi odloča Študijska komisija Naravoslovnotehniške fakultete.

### **Pogoji za dokončanje študija**

Za dokončanje študija mora študent opraviti vse obveznosti pri vseh predmetih, ki jih je vpisal ter pripraviti diplomsko delo in ga zagovarjati.

### **Pogoji za dokončanje posameznih delov programa, če jih program vsebuje**

Program ne vsebuje posameznih delov programa.

#### **Strokovni oz. znanstveni ali umetniški naslov (moški)**

- diplomirani tekstilni inženir (UN)

#### **Strokovni oz. znanstveni ali umetniški naslov (ženski)**

- diplomirana tekstilna inženirka (UN)

#### **Strokovni oz. znanstveni ali umetniški naslov (okrajšava)**

- dipl. tekst. inž. (UN)

#### **Strokovni oz. znanstveni ali umetniški naslov (poimenovanje v angleškem jeziku in okrajšava)**

(ni podatka)

# PREDMETNIK ŠTUDIJSKEGA PROGRAMA S PREDVIDENIMI NOSILKAMI IN NOSILCI PREDMETOV

## 1. letnik, obvezni

1. semester

|    |         |                                |                                 | Kontaktne ure |           |      |               |                  |                 |            |      |         |
|----|---------|--------------------------------|---------------------------------|---------------|-----------|------|---------------|------------------|-----------------|------------|------|---------|
|    | Šifra   | Ime                            | Nosilci                         | Predavanja    | Seminarji | Vaje | Klinične vaje | Druge obl. štud. | Samostojno delo | Ure skupaj | ECTS | Izbirni |
| 1. | 0068727 | Kemija 1                       | Urška Lavrenčič Štangar         | 60            | 0         | 30   | 0             | 0                | 90              | 180        | 6    | ne      |
| 2. | 0068729 | Kreativnost in razvoj izdelka  | Alenka Pavko Čuden              | 30            | 30        | 0    | 0             | 0                | 60              | 120        | 4    | ne      |
| 3. | 0068726 | Interdisciplinarnost tekstilij | Brigita Tomšič, Tatjana Rijavec | 45            | 15        | 0    | 0             | 0                | 60              | 120        | 4    | ne      |

2. semester

|    |         |                     |                    | Kontaktne ure |           |      |               |                  |                 |            |      |         |
|----|---------|---------------------|--------------------|---------------|-----------|------|---------------|------------------|-----------------|------------|------|---------|
|    | Šifra   | Ime                 | Nosilci            | Predavanja    | Seminarji | Vaje | Klinične vaje | Druge obl. štud. | Samostojno delo | Ure skupaj | ECTS | Izbirni |
| 1. | 0068728 | Kemija 2            | Marjan Jereb       | 45            | 15        | 30   | 0             | 0                | 90              | 180        | 6    | ne      |
| 2. | 0068731 | Načrtovanje prej    | Dunja Šajn Gorjanc | 30            | 0         | 30   | 0             | 0                | 60              | 120        | 4    | ne      |
| 3. | 0068732 | Oblačilna tradicija | Alenka Pavko Čuden | 45            | 15        | 0    | 0             | 0                | 60              | 120        | 4    | ne      |

## Celoletni

|    |         |              |                     | Kontaktne ure |           |      |               |                  |                 |            |      |         |
|----|---------|--------------|---------------------|---------------|-----------|------|---------------|------------------|-----------------|------------|------|---------|
|    | Šifra   | Ime          | Nosilci             | Predavanja    | Seminarji | Vaje | Klinične vaje | Druge obl. štud. | Samostojno delo | Ure skupaj | ECTS | Izbirni |
| 1. | 0068730 | Matematika 1 | Janko Bračič        | 90            | 0         | 90   | 0             | 0                | 180             | 360        | 12   | ne      |
| 2. | 0068725 | Fizika       | Borut Paul Kerševan | 90            | 0         | 90   | 0             | 0                | 180             | 360        | 12   | ne      |
| 3. | 0068733 | Vlakna       | Tatjana Rijavec     | 90            | 0         | 30   | 0             | 0                | 120             | 240        | 8    | ne      |

## 2. letnik, obvezni

### 1. semester

|    |         |                                     |                                                        | Kontaktne ure |           |      |               |                  |                 |            |      |         |
|----|---------|-------------------------------------|--------------------------------------------------------|---------------|-----------|------|---------------|------------------|-----------------|------------|------|---------|
|    | Šifra   | Ime                                 | Nosilci                                                | Predavanja    | Seminarji | Vaje | Klinične vaje | Druge obl. štud. | Samostojno delo | Ure skupaj | ECTS | Izbirni |
| 1. | 0068742 | Statistika                          | Stanislav Praček                                       | 30            | 0         | 30   | 0             | 0                | 60              | 120        | 4    | ne      |
| 2. | 0068734 | Načrtovanje tkanin                  | Matejka Bizjak                                         | 45            | 15        | 30   | 0             | 0                | 90              | 180        | 6    | ne      |
| 3. | 0068737 | Načrtovanje pletiv in pletenin      | Alenka Pavko Čuden                                     | 45            | 15        | 30   | 0             | 0                | 90              | 180        | 6    | ne      |
| 4. | 0068739 | Načrtovanje vlaknovin in kompozitov | Dunja Šajn Gorjanc                                     | 45            | 0         | 15   | 0             | 0                | 60              | 120        | 4    | ne      |
| 5. | 0068740 | Preiskave tekstilij                 | Andrej Demšar                                          | 30            | 15        | 30   | 0             | 15               | 90              | 180        | 6    | ne      |
| 6. | 0068743 | Strokovna angleščina                | Lekt. mag. Barbara Luštek Preskar, prof. angl. in nem. | 0             | 60        | 0    | 0             | 0                | 60              | 120        | 4    | ne      |

## 2. semester

|    |         |                                         |                             | Kontaktne ure |           |      |               |                  |                 |            |      |         |
|----|---------|-----------------------------------------|-----------------------------|---------------|-----------|------|---------------|------------------|-----------------|------------|------|---------|
|    | Šifra   | Ime                                     | Nosilci                     | Predavanja    | Seminarji | Vaje | Klinične vaje | Druge obl. štud. | Samostojno delo | Ure skupaj | ECTS | Izbirni |
| 1. | 0068736 | Kompozicija tkanin                      | Matejka Bizjak              | 30            | 0         | 30   | 0             | 0                | 60              | 120        | 4    | ne      |
| 2. | 0068735 | Kompozicija pletiv in pletenin          | Alenka Pavko Čuden          | 30            | 0         | 30   | 0             | 0                | 60              | 120        | 4    | ne      |
| 3. | 0068744 | Teorija plemenitenja                    | Barbara Simončič            | 45            | 15        | 0    | 0             | 0                | 60              | 120        | 4    | ne      |
| 4. | 0068738 | Načrtovanje predplemenitilnih postopkov | Petra Eva Forte Tavčer      | 45            | 15        | 30   | 0             | 0                | 90              | 180        | 6    | ne      |
| 5. | 0068741 | Razvoj krojev oblačil                   | Matejka Bizjak , Živa Zupin | 30            | 15        | 15   | 0             | 0                | 60              | 120        | 4    | ne      |
| 6. | 0111845 | Izbirni predmet 1                       |                             | 30            | 0         | 30   |               |                  | 60              | 120        | 4    | ne      |
| 7. | 0111846 | Izbirni predmet 2                       |                             | 30            | 15        | 15   | 0             | 0                | 60              | 120        | 4    | ne      |

## 2. letnik, Izbirni predmet 1 in 2

## 2. semester

|    |         |                                             |                                | Kontaktne ure |           |      |               |                  |                 |            |      |         |
|----|---------|---------------------------------------------|--------------------------------|---------------|-----------|------|---------------|------------------|-----------------|------------|------|---------|
|    | Šifra   | Ime                                         | Nosilci                        | Predavanja    | Seminarji | Vaje | Klinične vaje | Druge obl. štud. | Samostojno delo | Ure skupaj | ECTS | Izbirni |
| 1. | 0068708 | Računalniško oblikovanje prej in tkanin     | Matejka Bizjak , Živa Zupin    | 30            | 0         | 30   | 0             | 0                | 60              | 120        | 4    | da      |
| 2. | 0068707 | Računalniško oblikovanje pletiv in pletenin | Alenka Pavko Čuden, Živa Zupin | 30            | 0         | 30   | 0             | 0                | 60              | 120        | 4    | da      |

|     |         |                                     |                          |    |    |    |   |    |    |     |   |    |
|-----|---------|-------------------------------------|--------------------------|----|----|----|---|----|----|-----|---|----|
| 3.  | 0068706 | Računalniški sistemi v konfekciji   | Matejka Bizjak           | 30 | 0  | 30 | 0 | 0  | 60 | 120 | 4 | da |
| 4.  | 0068709 | Računalniško oblikovanje za tisk    | Marija Gorjanc           | 30 | 15 | 15 | 0 | 0  | 60 | 120 | 4 | da |
| 5.  | 0068710 | Upravljanje proizvodnje             | Andrej Demšar            | 45 | 15 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 6.  | 0108510 | Trženje tekstilij in oblačil        | Mateja Kos Koklič        | 45 | 15 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 7.  | 0068705 | Podjetništvo                        | Blaž Zupan               | 30 | 0  | 30 | 0 | 0  | 60 | 120 | 4 | da |
| 8.  | 0108511 | Psihologija komunikacije in trženja | prof. dr. Matija Svetina | 30 | 15 | 0  | 0 | 15 | 60 | 120 | 4 | da |
| 9.  | 0068712 | Vodenje kakovosti                   | Andrej Demšar            | 30 | 30 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 10. | 0068711 | Usnje in krzno                      | Marija Gorjanc           | 45 | 15 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 11. | 0068703 | Osnove 3D modeliranja               | Helena Gabrijelčič Tomc  | 30 | 15 | 15 | 0 | 0  | 60 | 120 | 4 | da |

### 3. letnik, obvezni

#### 1. semester

|    |         |                                  |                        | Kontaktne ure |           |      |               |                  |                 |            |      |         |
|----|---------|----------------------------------|------------------------|---------------|-----------|------|---------------|------------------|-----------------|------------|------|---------|
|    | Šifra   | Ime                              | Nosilci                | Predavanja    | Seminarji | Vaje | Klinične vaje | Druge obl. štud. | Samostojno delo | Ure skupaj | ECTS | Izbirni |
| 1. | 0068751 | Načrtovanje konfekcije           | Matejka Bizjak         | 45            | 15        | 30   | 0             | 0                | 90              | 180        | 6    | ne      |
| 2. | 0068750 | Načrtovanje barvalnih postopkov  | Mateja Kert            | 30            | 15        | 45   | 0             | 0                | 90              | 180        | 6    | ne      |
| 3. | 0068749 | Načrtovanje apreturnih postopkov | Barbara Simončič       | 45            | 30        | 15   | 0             | 0                | 90              | 180        | 6    | ne      |
| 4. | 0068752 | Načrtovanje tiskarskih postopkov | Petra Eva Forte Tavčer | 45            | 15        | 30   | 0             | 0                | 90              | 180        | 6    | ne      |
| 5. | 0068746 | Barvna metrika v tekstilstvu     | Sabina Bračko          | 30            | 0         | 15   | 0             | 0                | 45              | 90         | 3    | ne      |

|    |         |                                                 |                         |    |    |   |   |     |     |     |    |    |
|----|---------|-------------------------------------------------|-------------------------|----|----|---|---|-----|-----|-----|----|----|
| 6. | 0068748 | Informatika in metodologija<br>diplomskega dela | Bojana Boh<br>Podgornik | 30 | 15 | 0 | 0 | 0   | 45  | 90  | 3  | ne |
| 7. | 0068745 | Diplomsko delo                                  |                         |    |    |   |   | 150 | 150 | 300 | 10 | ne |

## 2. semester

|    |         |                              |                       | Kontaktne ure |           |      |                  |                     |                    |               |      |         |
|----|---------|------------------------------|-----------------------|---------------|-----------|------|------------------|---------------------|--------------------|---------------|------|---------|
|    | Šifra   | Ime                          | Nosilci               | Predavanja    | Seminarji | Vaje | Klinične<br>vaje | Druge obl.<br>štud. | Samostojno<br>delo | Ure<br>skupaj | ECTS | Izbirni |
| 1. | 0068747 | Ekologija v<br>tekstilstvu 1 | Petra Forte<br>Tavčar | 30            | 15        | 15   | 0                | 0                   | 60                 | 120           | 4    | ne      |
| 2. | 0068753 | Nega tekstilij 1             | Mateja Kert           | 30            | 15        | 15   | 0                | 0                   | 60                 | 120           | 4    | ne      |
| 3. | 0111847 | Izbirni predmet 3            |                       | 30            | 0         | 30   | 0                | 0                   | 60                 | 120           | 4    | ne      |
| 4. | 0111848 | Izbirni predmet 4            |                       | 30            | 15        | 15   | 0                | 0                   | 60                 | 120           | 4    | ne      |
| 5. | 0111849 | Izbirni predmet 5            |                       | 45            | 15        | 0    | 0                | 0                   | 60                 | 120           | 4    | ne      |

## 3. letnik, Izbirni predmet 3, 4 in 5

### 2. semester

|    |         |                                                |                                   | Kontaktne ure |           |      |                  |                     |                    |               |      |         |
|----|---------|------------------------------------------------|-----------------------------------|---------------|-----------|------|------------------|---------------------|--------------------|---------------|------|---------|
|    | Šifra   | Ime                                            | Nosilci                           | Predavanja    | Seminarji | Vaje | Klinične<br>vaje | Druge<br>obl. štud. | Samostojno<br>delo | Ure<br>skupaj | ECTS | Izbirni |
| 1. | 0068708 | Računalniško oblikovanje<br>prej in tkanin     | Matejka Bizjak ,<br>Živa Zupin    | 30            | 0         | 30   | 0                | 0                   | 60                 | 120           | 4    | da      |
| 2. | 0068707 | Računalniško oblikovanje<br>pletiv in pletenin | Alenka Pavko<br>Čuden, Živa Zupin | 30            | 0         | 30   | 0                | 0                   | 60                 | 120           | 4    | da      |
| 3. | 0068706 | Računalniški sistemi v<br>konfekciji           | Matejka Bizjak                    | 30            | 0         | 30   | 0                | 0                   | 60                 | 120           | 4    | da      |

|     |         |                                     |                          |    |    |    |   |    |    |     |   |    |
|-----|---------|-------------------------------------|--------------------------|----|----|----|---|----|----|-----|---|----|
| 4.  | 0068709 | Računalniško oblikovanje za tisk    | Marija Gorjanc           | 30 | 15 | 15 | 0 | 0  | 60 | 120 | 4 | da |
| 5.  | 0068710 | Upravljanje proizvodnje             | Andrej Demšar            | 45 | 15 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 6.  | 0108510 | Trženje tekstilij in oblačil        | Mateja Kos Koklič        | 45 | 15 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 7.  | 0068705 | Podjetništvo                        | Blaž Zupan               | 30 | 0  | 30 | 0 | 0  | 60 | 120 | 4 | da |
| 8.  | 0108511 | Psihologija komunikacije in trženja | prof. dr. Matija Svetina | 30 | 15 | 0  | 0 | 15 | 60 | 120 | 4 | da |
| 9.  | 0068712 | Vodenje kakovosti                   | Andrej Demšar            | 30 | 30 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 10. | 0068711 | Usnje in krzno                      | Marija Gorjanc           | 45 | 15 | 0  | 0 | 0  | 60 | 120 | 4 | da |
| 11. | 0068703 | Osnove 3D modeliranja               | Helena Gabrijelčič Tomc  | 30 | 15 | 15 | 0 | 0  | 60 | 120 | 4 | da |

**PRILOGA:**  
**UČNI NAČRTI PREDMETOV**

## BARVNA METRIKA V TEKSTILSTVU

|                                   |                                |
|-----------------------------------|--------------------------------|
| <b>Predmet:</b>                   | Barvna metrika v tekstilstvu   |
| <b>Course title:</b>              | Colour measurement in textiles |
| <b>Članica nosilka/UL Member:</b> | UL NTF                         |

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

Univerzitetna koda predmeta/University course code: 0068746

Koda učne enote na članici/UL Member course code: 11293

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 15                 | 0                                       | 0                                                   | 45                                                | 3    |

Nosilec predmeta/Lecturer: Sabina Bračko

Izvajalci predavanj:

Izvajalci seminarjev:

Izvajalci vaj:

Izvajalci kliničnih vaj:

Izvajalci drugih oblik:

Izvajalci praktičnega  
usposabljanja:

Vrsta predmeta/Course type: Obvezni/Compulsory

Jeziki/Languages:

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Vpis v letnik študija.

Prerequisites:

Entering the 3rd year of study.

Vsebina:

- Elektromagnetno sevanje;
- Planckova enačba;
- Absorpcija svetlobe;
- Fluorescenca, fosforescenca;
- Aditivno in subtraktivno mešanje barv;
- Dejavniki, ki vplivajo na videnje barve;
- CIE sistem za določanje barve;
- Instrumenti za merjenje barve;
- Določanje barvnih vrednosti obarvanih površin;
- Kubelka-Munk enačba;
- Računalniško receptiranje;
- Enačbe za vrednotenje barvnih razlik;
- Enačbe za določanje beline tekstilnega substrata;

Content (Syllabus outline):

- Electromagnetic radiation;
- Planck's equation;
- Absorption of light;
- Fluorescence, phosphorescence;
- Additive and subtractive colour mixing;
- Factors influencing colour perception;
- CIE system of colour definition;
- Instruments for colour measurement;
- Defining tristimulus values of coloured surfaces;
- Kubelka-Munk equation;
- Computer recipe prediction;
- Equations for colour difference evaluation;
- Equations for assessment of whiteness;

|                                                                                                       |                                                                                                                |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Standardi na področju barvne metrike v tekstilstvu.</li> </ul> | <ul style="list-style-type: none"> <li>Standards regarding colour measurement of textile materials.</li> </ul> |
|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|

### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>GOLOB, V. in GOLOB, D. Teorija barvne metrike. V Interdisciplinarnost barve. Del 1, V znanosti. Maribor : DKS, 2001;</li> <li>OHTA, N. in ROBERTSON, A. R. Colorimetry : Fundamentals and Applications. Chichester : John Wiley &amp; Sons, 2006;</li> <li>MCDONALD, R.: Colour Physics for Industry. Bradford : SDC, 1997; PARK, J.: Instrumental Colour Formulation : a Practical Guide. Bradford : SDC, 1993;</li> <li>CHRISTIE, R.M., MATHER, R. R., in WARDMAN, R. H. The Chemistry of Colour Application. Oxford : Blackwell Science, 2000.</li> </ul> |
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### Cilji in kompetence:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Študentje se seznajajo s fizikalnimi osnovami elektromagnetnega sevanja, s povezavo med konstitucijo barvil in barvo, s teorijo barvne metrike ter z uporabo enačb za merjenje barv.</p> <p><b>Kompetence:</b></p> <ul style="list-style-type: none"> <li>Spodobnost razumevanja temeljnih zakonitosti na področju nastanka in merjenja barve;</li> <li>Poznavanje in uporaba CIE kolorimetrije;</li> <li>Razumevanje različnih enačb za vrednotenje barvnih razlik;</li> <li>Spodobnost numeričnega vrednotenja beline materiala ter posebnih pojavov pri zaznavanju barve metamerija, barvna konstanca).</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Objectives and competences:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Students are instructed with basic laws of electromagnetic radiation, with connection between the constitution of dyes and colour, with the theory of colour measurement and with application of colour difference equations.</p> <p><b>Competences:</b></p> <ul style="list-style-type: none"> <li>Understanding basic laws regarding colour phenomenon and colour measurement;</li> <li>Knowledge and application of CIE colorimetry;</li> <li>Understanding different equations for colour difference evaluation;</li> <li>Expertise for numerical assessment of whiteness and special effects regarding colour perception (metamerism, colour constancy).</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Predvideni študijski rezultati:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>Študent pozna pomen barvne metrike, zna določati barvne vrednosti s pomočjo refleksijskega spektrofotometra in je sposoben uporabiti enačbe za določanje barve v različnih barvnih prostorih.</li> <li>Zna izmeriti barvne razlike in instrumentalno ovrednotiti obstojnost obarvanj v skladu z ustreznimi standardi.</li> <li>Sposoben je razložiti rezultate meritev obarvanja, beline in metamerije.</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Intended learning outcomes:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Knowledge and understanding:</b></p> <ul style="list-style-type: none"> <li>Student understands the significance of colour measurement, he knows how to measure colour parameters by using reflection spectrophotometer and is capable of applying the equations for colour identification in different colour spaces.</li> <li>He is able to measure colour differences and to instrumentally evaluate the resistance of dyeings according to appropriate standard methods.</li> <li>He can explain the results of colour measurement, whiteness and metamerism.</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Metode poučevanja in učenja:

|                                  |
|----------------------------------|
| Predavanja, laboratorijske vaje. |
|----------------------------------|

### Learning and teaching methods:

|                            |
|----------------------------|
| Lectures, laboratory work. |
|----------------------------|

### Načini ocenjevanja:

### Delež/Weight

### Assessment:

|                                 |         |                           |
|---------------------------------|---------|---------------------------|
| Pisni izpit                     | 70,00 % | Written exam              |
| Opravljene eksperimentalne vaje | 30,00 % | Completed laboratory work |

### Reference nosilca/Lecturer's references:

|                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>BLAZNIK, Barbara, MOŽINA, Klementina, BRAČKO, Sabina. Stability of ink-jet prints under influence of light. Nordic Pulp and Paper Research Journal, ISSN 0283-2631, 2013, vol. 28, no. 1, str. 111-118. [COBISS.SI-ID 2864752];</li> </ol> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

2. STAREŠINIČ, Marica, SIMONČIČ, Barbara, BRAČKO, Sabina. Using a digital camera to identify colors in urban environments. *Journal of imaging science and technology*, ISSN 1062-3701, 2011, vol. 55, no. 6, str. 060201/1-060201/4, ilustr., doi: 10.2352/J.ImagingSci.Technol.2011.55.6.060201. [COBISS.SI-ID 2684272];
3. BRAČKO, Sabina, ŠOLAR, Alenka, FORTE-TAVČER, Petra, SIMONČIČ, Barbara. Colour constancy of vat prints on cotton fabrics. *Coloration technology*, ISSN 1472-3581, 2009, vol. 125, no. 4, str. 222-227. [COBISS.SI-ID 2243440];
4. PAVLIŠIČ, Beni, ČERNE, Lidija, BRAČKO, Sabina, FERK SAVEC, Vesna. Vpliv UV-sevanja na obarvanja bombažnih tkanin z naravnimi barvili = Influence of UV radiation on cotton fabrics dyed with natural dyes. *Tekstilec*, ISSN 0351-3386, 2011, letn. 54, št. 4/6, str. 69-79, ilustr. [COBISS.SI-ID 2596464];
5. RAT, Blaž, MOŽINA, Klementina, BRAČKO, Sabina, PODLESEK, Anja. Influence of temperature and humidity on typographic and colorimetric properties of ink jet prints. *Journal of imaging science and technology*, ISSN 1062-3701, Sep./Oct. 2011, vol. 55, no. 5, str. 050607/1-050607/8, ilustr. [COBISS.SI-ID 2677104].

## DIPLOMSKO DELO

**Predmet:** Diplomsko delo  
**Course title:** Diploma work  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068745

**Koda učne enote na članici/UL Member course code:** 10008

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
|                         |                     |                    |                                         | 150                                                 | 150                                               | 10   |

**Nosilec predmeta/Lecturer:**

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:**

**Jeziki/Languages:**

Predavanja/Lectures:

Vaje/Tutorial:

**Pogoji za vključitev v delo oz. za opravljanje  
študijskih obveznosti:**

**Prerequisites:**

**Vsebina:**

**Content (Syllabus outline):**

**Temeljna literatura in viri/Readings:**

**Cilji in kompetence:**

**Objectives and competences:**

**Predvideni študijski rezultati:**

**Intended learning outcomes:**

**Metode poučevanja in učenja:**

**Learning and teaching methods:**

|  |  |
|--|--|
|  |  |
|--|--|

**Načini ocenjevanja:**

**Delež/Weight**

**Assessment:**

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

**Reference nosilca/Lecturer's references:**

|  |
|--|
|  |
|--|

# EKOLOGIJA V TEKSTILSTVU 1

**Predmet:** Ekologija v tekstilstvu 1  
**Course title:** Ecology in textiles 1  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev)      **Študijska smer**      **Letnik**      **Semestri**      **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068747

**Koda učne enote na članici/UL Member course code:** 11139

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 15                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Petra Forte Tavčar

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

- Osnove ekologije;
- Okoljska zakonodaja;
- Organizacija in standardizacija poslovanja z vidika trajnostnega razvoja;
- Opredelitev ekološkega produkta in ekoloških tekstilij ter okoljske oznake;
- Vpliv procesov izdelave vlaken, tekstilij in oblačil na ljudi in okolje;
- Okolju prijazni postopki pridobivanja vlaken, predelave in plemenitenja tekstila;
- Oprečne substance na tekstilijah in njihov vpliv na zdravje ljudi;

**Content (Syllabus outline):**

- Basics of ecology;
- Environmental legislation;
- Standardization and environmental management systems;
- Definition of sustainable product, sustainable textiles and ecology labels;
- Influence of fibre, textiles and apparel production on environment and population;
- Environmental friendly processes of fibre production, processing and finishing of textiles;
- Toxic substances on textiles and their influence on human health;

|                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Ravnanje z odpadki na splošno in ravnanje s tekstilnimi odpadki; Postopki recikliranja in razgradnje odpadnih tekstilij;</li> <li>• Tehnološke odpadne vode – nastanek, analitika in čiščenje;</li> <li>• Ponovna uporabe tehnoloških odpadnih vod;</li> <li>• Varčevanje z vodo, elektriko in toploto v proizvodnji;</li> <li>• Emisije v zrak.</li> </ul> | <ul style="list-style-type: none"> <li>• Treatment of solid waste in general and textile waste;</li> <li>• Recycling of textiles and biodegradation of textiles;</li> <li>• Technological effluents – origin, analysis and treatment;</li> <li>• Reuse of water;</li> <li>• Saving of water and energy in production of textiles; Air pollution.</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• WANG Y. Recycling in Textiles, Woodhead Publishing, Cambridge, 2006;</li> <li>• MIRAFAB M., HORROCKS A.R. Ecotextiles, Woodhead Publishing, Cambridge, 2007;</li> <li>• COOPER, P. Colour in Dyehouse Effluent. Bradford : SDC, 1995;</li> <li>• KURNIK ĐONLAGIĆ, J. Tehnološke vode in odplake. Maribor : Fakulteta za strojništvo, 2001; Zakonodaja, standardi; Spletne strani ARSO in EU komisije.</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Cilji in kompetence:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Študent spozna:</p> <ul style="list-style-type: none"> <li>• Vpliv procesov tekstilne industrije in tekstilij na okolje;</li> <li>• Okolju prijaznejše tekstilne surovine, sredstva in postopke izdelave tekstilij;</li> <li>• Vpliv kemikalij in materialov na zdravje ljudi;</li> <li>• Osnove okoljske analitike in tehnologije čiščenja tehnoloških odpadnih vod in zraka;</li> <li>• Problematiko tekstilnih odpadkov; okoljsko zakonodajo in ekološke standarde.</li> </ul> | <p>Learning about:</p> <ul style="list-style-type: none"> <li>• Influences of processes in textile industry on the environment;</li> <li>• Environment-friendlier textile materials, chemicals and processes in production of textiles;</li> <li>• Impact of chemicals and materials on human health;</li> <li>• Basics of environmental analysis and technologies of cleaning water and air;</li> <li>• Environmental legislation and standards.</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Predvideni študijski rezultati:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>• Vplivov tekstilne industrije na okolje;</li> <li>• Okolju prijaznejših tekstilnih materialov, postopkov in izdelkov;</li> <li>• Vpliva tekstilij in kemikalij na zdravje ljudi;</li> <li>• Kriterijev za pridobitev ekoloških oznak;</li> <li>• Postopkov predelave, recikliranja in odlaganja tekstilnih odpadkov;</li> <li>• Zakonodaje in standardov s področja varovanja okolja;</li> <li>• Okoljske analitike;</li> <li>• Osnov tehnologije čiščenja odpadnih tehnoloških vod in zraka.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>Knowledge and understanding:</b></p> <ul style="list-style-type: none"> <li>• Influence of textile industry on the environment;</li> <li>• Environment-friendlier textile materials, process and products;</li> <li>• Influence of textiles and chemicals on human health;</li> <li>• Eco-labelling and acquisition criteria;</li> <li>• Treatment, recycling and disposal of textile waste;</li> <li>• Legislation and standardisation on environmental protection;</li> <li>• Environmental analysis;</li> <li>• Treatment of effluents.</li> </ul> |
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#### Metode poučevanja in učenja:

|                                             |                                                                        |
|---------------------------------------------|------------------------------------------------------------------------|
| Predavanja, seminarji, laboratorijske vaje. | Learning and teaching methods:<br>Lectures, seminars, laboratory work. |
|---------------------------------------------|------------------------------------------------------------------------|

#### Načini ocenjevanja:

| Načini ocenjevanja:          | Delež/Weight | Assessment:               |
|------------------------------|--------------|---------------------------|
| Ustni/pisni izpit            | 40,00 %      | Oral/written exam         |
| Seminarska naloga            | 30,00 %      | Seminar work              |
| Poročilo o opravljenih vajah | 30,00 %      | Report on laboratory work |

#### Reference nosilca/Lecturer's references:

- PREŠA, Polonca, FORTE-TAVČER, Petra. Low water and energy saving process for cotton pretreatment. *Textile research journal*, ISSN 0040-5175, 2009, vol. 79, no. 1, str. [76]–88, ilustr. [COBISS.SI-ID 2110320];
- FORTE-TAVČER, Petra. Low-temperature bleaching of cotton induced by glucose oxidase enzymes and hydrogen peroxide activators. *Biocatalysis and biotransformation*, ISSN 1024-2422, 2012, vol. 30, no. 1, str. 20–26, doi: 10.3109/10242422.2012.644437. [COBISS.SI-ID 2674288];
- ŽURGA, Zala, FORTE-TAVČER, Petra. Zeleno potrošništvo in upoštevanje ekoloških oznak pri nakupu tekstilij = Green consumerism, recognition and consideration of eco labels at textile purchase. *Tekstilec*, ISSN 0351-3386, 2013, letn. 56, št. 2, str. 100–110, ilustr. [COBISS.SI-ID 2882672]

# FIZIKA

**Predmet:** Fizika  
**Course title:** Physics  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev)      **Študijska smer**      **Letnik**      **Semestri**      **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068725  
**Koda učne enote na članici/UL Member course code:** 11319

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 90                      | 0                   | 90                 | 0                                       | 0                                                   | 180                                               | 12   |

**Nosilec predmeta/Lecturer:** Borut Paul Kerševan

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

**Prerequisites:**

Vpis v 1. letnik.      Enetring the 1st year of program.

**Vsebina:**

**Content (Syllabus outline):**

- Uvod:** Skalarne, vektorske količine, enote, meritve, merske napake.
- Mehanika:** Sile in Newtonovi zakoni (vklj.: sila lepenja in trenja, gravitacija nad in pod površjem, med telesi), navor sil, primeri iz statike in dinamike; Gibalna količina (vklj.: sila curka, nasprotna sila curka, reaktivni pogon); Vrtljna količina; Delo in energija (vklj.: prožnostna energija, rotacijska kinetična energija); Elastične in plastične deformacije (vklj.: nateg, stisljivost, elastični modul, natezna trdnost, torzija, strig); Dodatna poglavja iz mehanike kontinuuumov (vklj.: zveze med snovnimi elastičnimi konst.); Nihanje

- Introduction:** Scalar and vector variables, units, measurements, measurement uncertainties;
- Mechanics:** Forces, Newton's laws (incl.: friction, gravitation above and below the Earth's surface), torque, examples from statics and dynamics; Momentum (incl.: jet force, reverse jet force); Angular momentum; Work and energy (incl.: elastic energy, rotational kinetic energy); Elastic and plastic deformations (incl.: elastic module, torsion, shear, relations among material constants); Oscillations (incl.: damped and forced oscillations, resonance); Waves (incl.: sound, ultrasound, Doppler effect); Hydrostatics (incl.:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <p>(vklj.: dušeno, vsiljeno nihanje, resonanca); Valovanje (vklj.: hitrost in energ. valov., zvok, ultrazvok, Dopplerjev pojav); Hidrostatika (vklj.: hidrost. tlak, hidr. naprave, vzgon), hidrodinamika (vklj.: Bernoullijeva en., meritev pretoka, viskoznost, upor v tekočini).</p> <ul style="list-style-type: none"> <li>• <b>Elektromagnetizem:</b> Električni naboj, tok (vklj.: elek. upornost snovi, prevajanje v kovinah); Napetost, Ohmov zakon in Kirchoffova izreka (vklj.: preprosti tokokrogi); Električno polje, kondenzator (vklj. polje v snovi); Magnetno polje; magnetna sila na gibajoče se naboje (vklj.: Hallov pojav); indukcija in njena uporaba (vklj.: transformator, zaznavanje mag. polja); elektromagnetno valovanje (vklj.: EM valovanje v snovi).</li> <li>• <b>Termodinamika:</b> Temperatura (vklj.: merjenje temp., temp. raztezanje, bimetal); 1. zakon termodinamike; Enačbe stanja (vklj.: plinska enačba, fazni diagrami); Termodin. spremembe na plinu (vklj.: delo pri raztezanju, zveza med specifičnima toplotama); energijski zakon (vklj.: fazne spremembe); Toplotni stroji (vklj.: izkoristki toplotnih strojev); Razširjanje toplote (vklj.: toplotno prevajanje, izolacija).</li> <li>• <b>Optika:</b> Valovna optika (vklj.: interferenca, uklon rentgenskih žarkov); Geometrijska optika (vklj.: odboj, lom, popolni idboj, optične naprave - mikroskop, teleskop). Izbrane teme iz moderne fizike (vklj.: fotoefekt, model atoma, radioaktivnost).</li> </ul> | <p>hydrostatic pressure, thrust), hydrodynamics (incl.: Bernoulli equation, viscosity, resistance in fluid).</p> <ul style="list-style-type: none"> <li>• <b>Electromagnetism:</b> Electric charge, current (incl.: electric resistivity, conductance in metals); Voltage, Ohm's law, Kirchhoff's laws (incl.: simple circuits); Electric field, capacitor (incl.: field in matter); Magnetic field, magnetic force on moving charge (incl.: Hall's effect), coil; magnetic induction and applications (incl.: transformer); electromagnetic waves.</li> <li>• <b>Thermodynamics:</b> Temperature (incl.: measurements of T, expansion, bimetal); 1st law of thermodynamics; Equation of state (incl.: phase diagram); Thermodynamic changes on gas (incl.: expansion work, specific heat relation); Heat engines (incl.: efficiencies); Heat dissipation, heat isolation).</li> <li>• <b>Optics:</b> Wave optics (incl.: interference, X-ray diffraction); Geometric optics (incl.: reflection, refraction, total reflection, microscope, telescope). Selected topics in Modern Physics: (incl. photoeffect, model of atom, radioactivity).</li> </ul> |
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#### Temeljna literatura in viri/Readings:

- H.D. YOUNG, R.A. FREEDMAN: Sears and Zemansky's University Physics, Addison-Wesley, ZDA, 2000, 206 str., poglavja: 15-1, 15-2, 15-3, 15-4, 15-5, 15-7, 15-8, 16-1, 16-2, 16-3, 16-5, 16-7, 17-1, 17-2, 17-3, 17-5, 17-8, 18-4, 18-7, 19, 21-1, 21-2, 21-5, 21-6, 34-3, 34-4, 35-1, 35-2, 35-3, 36-3, 36-4, 36-5, 36-6, 37-1, 37-2, 37-3, 38-1, 38-2, 38-3, 38-4, 38-5, 38-7, 40-9, 45-4, 45-5; I.
- DREVENŠEK OLENIK, B. GOLOB, I. SERŠA: Naloge iz fizike za študente tehniških fakultet (DMFA, 2003);

#### Alternativna literatura:

- I. KUŠČER, A. MOLJK: Fizika 2. del. DZS, Ljubljana (1984), poglavja 13, 14, 19, 20, 21; I. KUŠČER, A. MOLJK: Fizika 3. del. DZS, Ljubljana (1987), poglavja 28, 31.

#### Cilji in kompetence:

##### Cilji:

- Kratka ponovitev, nadgradnja srednješolske fizike;
- Seznanitev študentov s temeljnimi poglavji fizike;
- Poudarek na temah, za katere se pričakuje, da jih bodo študenti srečevali pri kasnejšem študiju in delu (opis vsebine v oklepajih);
- Podajanje analitičnega reševanja zadanih problemov in upravičene poenostavitve le-teh.

##### Kompetence:

- Razumevanje fizikalnih zakonitosti, na katerih temeljijo naravni pojavi in merske metode;

#### Objectives and competences:

##### Objectives:

- Short repetition and sophistication of high school physics;
- Acquainting with the basic laws of physics;
- Emphasize on the subjects which are expected to be encountered by students during the later studies and work;
- Analytic problem solving and justified simplification of problems.

##### Competences:

|                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <ul style="list-style-type: none"> <li>• Sposobnost matematične formulacije problemov;</li> <li>• Obvladovanje fizikalnih osnov metod in tehnik, s katerimi se bodo študenti srečevali;</li> <li>• Formulacija problemov z izbiro potrebnih podatkov, metodo in interpretacijo meritev, ter upoštevanjem poenostavitev.</li> </ul> | <ul style="list-style-type: none"> <li>• Understanding of laws of physics on which natural phenomena and measurement methods are based upon;</li> <li>• Ability of mathematical formulation of problems;</li> <li>• Mastering basic physics methods to be used by the students at later studies and work;</li> <li>• Formulation of problems by selection of necessary data, method and simplifications, measurements interpretation.</li> </ul> |
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#### **Predvideni študijski rezultati:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <b>Znanje in razumevanje:</b> <ul style="list-style-type: none"> <li>• Osnovne fizikalne zakonitosti, opisno ter v matematični formulaciji; medsebojno povezovanje le-teh.</li> <li>• Analitičen pristop k zadanim problemom, dedukcija na osnovne fizikalne zakonitosti, na katerih posamezni pojavi in merske metode temeljijo; nekateri primeri aplikacij na področju, s katerim se bodo študenti srečevali.</li> <li>• Razumevanje pojavov v naravi na podlagi preprostejših abstraktnih zakonitosti; utemeljevanje uporabljenih poenostavitev in približkov.</li> <li>• Modeliranje problemov z uporabo poenostavitev (zanemaritve nebitvenih lastnosti); izbira potrebnih podatkov; interpretacija meritev.</li> </ul> | <b>Intended learning outcomes:</b><br><b>Knowledge and understanding:</b> <ul style="list-style-type: none"> <li>• Basic laws of physics, descriptive and in mathematical formulation; interconnection among laws of physics.</li> <li>• Analytic approach to problems and their deduction to basic physics mechanisms; examples of applications in the area of the program.</li> <li>• Understanding of natural phenomena on the basis of simple (abstract) laws; justification of simplifications and approximations.</li> <li>• Modelling of problems using simplifications; choice of necessary data and interpretation of measurements.</li> </ul> |
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#### **Metode poučevanja in učenja:**

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| Predavanja z demonstracijskimi poskusi, vodeno in samostojno reševanje računskih vaj in problemov. | <b>Learning and teaching methods:</b><br>Lectures with demonstrations, assisted and individual problem solving |
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#### **Načini ocenjevanja:**

#### **Delež/Weight**

#### **Assessment:**

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| Način: pisni izpit, ustno izpraševanje, naloge, projekt. Izpit je sestavljen iz dveh delov: Pisni izpit, kjer se rešujejo računske naloge. Pisni izpit je mogoče opraviti tudi tako, da se piše dva kolokvija v povprečju vsaj 50%. | 50,00 % | Type: examination, oral, coursework, project. Examination composed of two parts: Written exam (problem solving). Written exam can be passed also by passing two qolocquia (at least 50%). |
| Teoretični izpit, kjer se odgovarja na teoretična vprašanja. Teoretični del se opravi s pisnim testom ob koncu kurza ali na ustnem izpitu.                                                                                          | 50,00 % | Theory part - answering to questions on explained theory. Theory part is organized either in a form of a written test or as an oral exam.                                                 |

#### **Reference nosilca/Lecturer's references:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. AAD, G., CINDRO, Vladimir, DELIYERGIYEV, Maksym, DOLENC, Irena, FILIPČIČ, Andrej, FRATINA, Saša, GORIŠEK, Andrej, KERŠEVAN, Borut Paul, KRAMBERGER, Gregor, MAČEK, Boštjan, MANDIĆ, Igor, MIJOVIĆ, Liza, MIKUŽ, Marko, TYKHONOV, Andrii, et al, ATLAS Collaboration. Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC. Physics letters. Section B, ISSN 0370-2693. [Print ed.], 2012, vol. 716, no. 1, str. 1-29, doi: 10.1016/j.physletb.2012.08.020. [COBISS.SI-ID 26060071], [JCR, SNIP, WoS do 22. 1. 2017: št. citatov (TC): 3792, čistih citatov (CI): 3684, Scopus do 13. 1. 2017: št. citatov (TC): 3217, čistih citatov (CI): 3162]; |
| 2. AAD, G., CINDRO, Vladimir, FILIPČIČ, Andrej, GORIŠEK, Andrej, KERŠEVAN, Borut Paul, KRAMBERGER, Gregor, MANDIĆ, Igor, MIJOVIĆ, Liza, MIKUŽ, Marko, ŠFILIGOJ, Tina, VALENCIČ, Nika, et al, ATLAS Collaboration. Measurement of spin correlation in top-antitop quark events and search for top squark pair production in pp collisions at [square root] 8 TeV using the ATLAS                                                                                                                                                                                                                                                                                                                                   |

- detector. Physical review letters, ISSN 0031-9007. [Print ed.], 2015, vol. 114, no. 14, str. 142001-1-142001-19, doi: 10.1103/PhysRevLett.114.142001. [COBISS.SI-ID 28810791], [JCR, SNIP, WoS do 22. 1. 2017: št. citatov (TC): 9, čistih citatov (CI): 9, Scopus do 28. 1. 2017: št. citatov (TC): 19, čistih citatov (CI): 18];
3. AAD, G., CINDRO, Vladimir, FILIPČIČ, Andrej, GORIŠEK, Andrej, KERŠEVAN, Borut Paul, KRAMBERGER, Gregor, MANDIĆ, Igor, MIJOVIĆ, Liza, MIKUŽ, Marko, ŠFILIGOJ, Tina, VALENČIČ, Nika, et al, ATLAS Collaboration. Combined measurement of the Higgs boson mass in pp collisions at  $\sqrt{s} = 7$  and 8 TeV with the ATLAS and CMS experiment. Physical review letters, ISSN 0031-9007. [Print ed.], 2015, vol. 114, no. 19, str. 191803-1-191803-33, doi: 10.1103/PhysRevLett.114.191803. [COBISS.SI-ID 28811815], [JCR, SNIP, WoS do 22. 1. 2017: št. citatov (TC): 149, čistih citatov (CI): 149, Scopus do 31. 1. 2017: št. citatov (TC): 149, čistih citatov (CI): 148];
  4. AAD, G., CINDRO, Vladimir, DELIYERGIYEV, Maksym, FILIPČIČ, Andrej, FRATINA, Saša, GORIŠEK, Andrej, KERŠEVAN, Borut Paul, KRAMBERGER, Gregor, MAČEK, Boštjan, MANDIĆ, Igor, MIJOVIĆ, Liza, MIKUŽ, Marko, et al, ATLAS Collaboration. Search for invisible decays of a Higgs boson produced in association with a Z boson in ATLAS. Physical review letters, ISSN 0031-9007. [Print ed.], 2014, vol. 112, no. 20, str. 201802-1-201802-19, doi: 10.1103/PhysRevLett.112.201802. [COBISS.SI-ID 27885607], [JCR, SNIP, WoS do 22. 1. 2017: št. citatov (TC): 100, čistih citatov (CI): 92, Scopus do 27. 1. 2017: št. citatov (TC): 70, čistih citatov (CI): 66];
  5. AAD, G., CINDRO, Vladimir, DOLENC, Irena, FILIPČIČ, Andrej, FRATINA, Saša, GORIŠEK, Andrej, KERŠEVAN, Borut Paul, KRAMBERGER, Gregor, MAČEK, Boštjan, MANDIĆ, Igor (pisar), MIJOVIĆ, Liza, MIKUŽ, Marko, TYKHONOV, Andrii, et al, ATLAS Collaboration. Search for dark matter candidates and large extra dimensions in events with a photon and missing transverse momentum in pp collision data at  $\sqrt{s} = 7$  TeV with the ATLAS detector. Physical review letters, ISSN 0031-9007. [Print ed.], 2013, vol. 110, no. 1, str. 011802-1-011802-18, doi: 10.1103/PhysRevLett.110.011802. [COBISS.SI-ID 26480167], [JCR, SNIP, WoS do 22. 1. 2017: št. citatov (TC): 85, čistih citatov (CI): 78, Scopus do 26. 1. 2017: št. citatov (TC): 83, čistih citatov (CI): 78].

# INFORMATIKA IN METODOLOGIJA DIPLOMSKEGA DELA

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|-----------------------------------|----------------------------------------------------|
| <b>Predmet:</b>                   | Informatika in metodologija diplomskega dela       |
| <b>Course title:</b>              | Information sources and methodology of thesis work |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                             |

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

|                                                            |         |
|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0068748 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 11294   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 0                  | 0                                       | 0                                                   | 45                                                | 3    |

**Nosilec predmeta/Lecturer:** Bojana Boh Podgornik

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

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|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

- Računalniška pismenost, razvite spretnosti za uporabo informacijsko-komunikacijskih tehnologij.
- Poznavanje terminologije študijskega področja v slovenskem in angleškem jeziku.

**Prerequisites:**

- Computer literacy, skills of using information and communication technologies.
- Knowledge of the study field terminology in Slovenian and English language.

**Vsebina:**

- Zgradba diplomskega dela, znanstvenega in strokovnega članka;
- Metodološka zasnova in načrtovanje diplomske raziskave;
- Viri informacij v tiskani in elektronski obliki;
- Reference po standardu ISO 690, bibliografski slogi;
- Bibliografske baze podatkov: struktura, lastnosti, primeri za področje študija;

**Content (Syllabus outline):**

- Structure of the diploma work, scientific and professional articles;
- Methodological design and planning of the diploma research;
- Sources of information in printed and electronic forms;
- References according to the standard ISO 690, bibliographic styles;

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| <ul style="list-style-type: none"> <li>• Priprava profilov za iskanje: postavljanje ključnih besed, krajšanje, maskiranje, Boolovi in posebni operatorji, vključevanje dodatnih iskalnih polj;</li> <li>• Retrospektivne poizvedbe. Iskanje z dodano vrednostjo za prepoznavanje in interpretacijo trendov;</li> <li>• Faktografske baze podatkov za področje stroke: tipi, uporaba, dostopnost;</li> <li>• Informacijski sistemi, združevalni iskalniki;</li> <li>• Osnove intelektualne lastnine: avtorske pravice, blagovne znamke, zaščiteni modeli, patenti – pregled, pomen, dostopnost informacij;</li> <li>• Informacijske metode za analizo in sintezo podatkov v znanje: metoda strukturiranja podatkov v drevesne in modularne sisteme, metoda prepoznavanja vzorcev, informacijska gostota;</li> <li>• Postavljanje in testiranje raziskovalnih hipotez. Obdelava raziskovalnih podatkov;</li> <li>• Metodološki pristopi za pripravo strokovnih in znanstvenih predstavitev;</li> </ul> | <ul style="list-style-type: none"> <li>• Bibliographic databases: structure, properties, examples from the field of study;</li> <li>• Preparation of search profiles: selection of keywords, truncation, masking, Boolean and special search operators, the inclusion of additional search fields;</li> <li>• Retrospective searches. Added value searches for the identification and interpretation of trends;</li> <li>• Factual database in the field of study: types, use, accessibility; Information systems, federated search engines;</li> <li>• Basics of intellectual property: copyrights, trademarks, registered designs, patents;</li> <li>• Information methods for analysis and synthesis of data into knowledge: method of structuring data into tree and modular systems, the method of pattern recognition, information density;</li> <li>• Setting up and testing of research hypotheses. Processing of research data;</li> <li>• Methodological approaches for the preparation of technical and scientific presentations.</li> </ul> |
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### Temeljna literatura in viri/Readings:

- BOH, B. Metodologija diplomskega dela – spletna učilnica z gradivi za študente <http://www.kii3.ntf.uni-lj.si/pouk3/>;
- DAY, R.A and GASTER B. How to write and publish a scientific paper. Cambridge: Cambridge University press, 2010, 302 str.;
- Merila in kazalci informacijske pismenosti v visokem šolstvu [prevod K.STOPAR et al.] Ljubljana : Zveza bibliotekarskih društev Slovenije, 2010, 23 str.;
- CHOWDHURY, G.G. Introduction to modern information retrieval. Second edition, London: Facet Publishing, 2004.;
- WATSON, R.T. Data management : Databases and organizations. Third Edition, New York: John Wiley & Sons, 2002.

### Cilji in kompetence:

Študent se metodološko usposobi za izdelavo diplomskega dela. Z uporabo podatkovnih baz in informacijskih sistemov zna samostojno poiskati ustrezno znanstveno in strokovno literaturo ter obvlada citiranje. Pozna osnove intelektualne lastnine. Neurejene podatke zna analizirati in iz njih pripraviti vsebinsko sintezo. Usposobi se za pripravo znanstvenih in strokovnih besedil, zlasti diplomskega dela. Metodološko zna načrtovati potek enostavnejše raziskave. Preizkusi se v javni predstavitvi rezultatov lastnega dela ter sodeluje v razpravi.

#### Kompetence:

- Poznavanje virov strokovnih in znanstvenih informacij, obvladovanje citiranja po veljavnih standardih;
- Obvladovanje enostavnih in naprednih tehnik iskanja v specializiranih podatkovnih zbirkah in/ali prek spletnih iskalnikov;
- Poznavanje osnov intelektualne lastnine, zlasti industrijske;

### Objectives and competences:

The student is methodologically trained for the diploma work. With the use of databases and information systems the student is able to find relevant scientific and technical literature, and masters citations. Knows the basics of intellectual property. Is able to analyze data and synthesize information into knowledge. Is capable of writing scientific and technical texts, in particular the diploma thesis. Is able to plan methodologically a simple research project. Practices public presentations of the results, and participates in discussions.

#### Competencies:

- Knowing the sources of technical and scientific information, and mastering referencing by current standards;
- Mastering simple and advanced search techniques for the specialized databases and / or for the web search engines;
- Knowing the basics of intellectual property, especially industrial;

|                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Uporaba osnovnih informacijskih metod za analizo in sintezo informacij v znanje;</li> <li>• Metodološko načrtovanje raziskave diplomskega dela;</li> <li>• Poznavanje zgradbe strokovnih in znanstvenih besedil, usposobljenost za pisanje besedil diplomskega dela;</li> <li>• Urjenje v profesionalnem javnem nastopanju in razpravljanju na področju stroke.</li> </ul> | <ul style="list-style-type: none"> <li>• Application of basic information methods for analysis and synthesis of data into knowledge.</li> <li>• Methodological design of the diploma work research;</li> <li>• Knowing the structure of professional and scientific texts; ability to write texts for the diploma thesis;</li> <li>• Training in professional public presentations and discussions in the field of study.</li> </ul> |
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#### **Predvideni študijski rezultati:**

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| <p><b>Znanje:</b></p> <ul style="list-style-type: none"> <li>• Viri zanesljivih strokovnih in znanstvenih informacij ter pravila za citiranje po standardu ISO690;</li> <li>• Izbrane bibliografske in faktografske baze podatkov za področje študija, informacijski sistemi in združevalni iskalniki;</li> <li>• Iskalna logika in operatorji za sestavljanje iskalnih profilov v specializiranih podatkovnih bazah in/ali spletnih iskalnikih;</li> <li>• Kategorije in možnosti za zaščito pravic intelektualne lastnine;</li> <li>• Značilna zgradba diplomskega dela, znanstvenega in strokovnega članka, patenta;</li> <li>• Osnovne informacijske metode za urejanje podatkov v sisteme;</li> <li>• Metodološki pristopi za načrtovanje diplomskega dela, postavljanje delovnih hipotez, obdelavo rezultatov, izdelavo pisnih izdelkov in ustnih predstavitev na področju študijskega programa.</li> </ul> <p><b>Razumevanje:</b></p> <ul style="list-style-type: none"> <li>• Pomen informacijske pismenosti v sodobni družbi ter merila za njeno vrednotenje;</li> <li>• Vloga, pomen, pravni in etični vidiki zaščite intelektualne lastnine;</li> <li>• Pomen metodoloških pristopov za analizo in sintezo neurejenih informacij v znanje;</li> <li>• Potek cikla raziskovalnega dela.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Reliable sources of technical and scientific information, and citation rules according to the standard ISO690;</li> <li>• Selected bibliographic and factual databases in the field of study, information systems and federated search engines;</li> <li>• Search logic and operators for designing search queries for specialized databases and /or web search engines;</li> <li>• Categories and options for the protection of intellectual property rights;</li> <li>• Characteristic structure of the diploma thesis, scientific and technical papers, patents;</li> <li>• Basic information methods for the synthesis of data into systems;</li> <li>• Methodological approaches for the design of diploma work, definition of working hypotheses, processing of results, writing texts, and oral presentations in the field of the study programme.</li> </ul> <p><b>Understanding:</b></p> <ul style="list-style-type: none"> <li>• The importance of information literacy in a contemporary society; standards for its evaluation;</li> <li>• The role, importance, legal and ethical aspects of intellectual property rights;</li> <li>• The importance of methodological approaches for analysis and synthesis of scattered information into knowledge;</li> <li>• Cycle of the research process.</li> </ul> |
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#### **Metode poučevanja in učenja:**

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| <ul style="list-style-type: none"> <li>• Predavanja so podprta z računalniškimi predstavitevami in interaktivnim sodelovanjem študentov.</li> <li>• Seminarsko projektno delo in razprave (samostojno delo študenta v interakciji z učiteljem in s skupino) ter zaključna predstavitev rezultatov na študentski konferenci.</li> </ul> | <p><b>Learning and teaching methods:</b></p> <ol style="list-style-type: none"> <li>1. Lectures are supported by computer presentations and students' interactive participation.</li> <li>2. Seminar project work and discussions (individual work of students in interactions with the teacher and with the group), and the final presentation of results at the students' conference.</li> </ol> |
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#### **Načini ocenjevanja:**

#### **Delež/Weight**

#### **Assessment:**

|                 |         |                     |
|-----------------|---------|---------------------|
| Pisni izpit     | 60,00 % | Written examination |
| Seminar-projekt | 40,00 % | Seminar-project     |

**Reference nosilca/Lecturer's references:**

1. BOH PODGORNIK, Bojana, DOLNIČAR, Danica, ŠORGO, Andrej, BARTOL, Tomaž. Development, testing, and validation of an information literacy test (ILT) for higher education. *Journal of the Association for Information Science and Technology*, 2016, vol. 67, iss. 10, str. 2420-2436;
2. BOH PODGORNIK, Bojana, DOLNIČAR, Danica, GLAŽAR, Saša A. Does the information literacy of university students depend on their scientific literacy?. *Eurasia*, 2017, vol. 13, iss. 7, str. 3869-3891;
3. ŠORGO, Andrej, BARTOL, Tomaž, DOLNIČAR, Danica, BOH PODGORNIK, Bojana. Attributes of digital natives as predictors of information literacy in higher education. *British journal of educational technology*, 2017, vol. 48, no. 3, str. 749-767;
4. DOLNIČAR, Danica, BOH PODGORNIK, Bojana, BARTOL, Tomaž. A comparative study of three teaching methods on student information literacy in stand-alone credit-bearing university courses. *Journal of information science*, 2016, doi: 10.1177/0165551516655084.

# INTERDISCIPLINARNOST TEKSTILIJ

**Predmet:** Interdisciplinarnost tekstilij  
**Course title:** Interdisciplinarity of textiles  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068726  
**Koda učne enote na članici/UL Member course code:** 11038

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Brigita Tomšič, Tatjana Rijavec

Izvajalci predavanj:  
 Izvajalci seminarjev:  
 Izvajalci vaj:  
 Izvajalci kliničnih vaj:  
 Izvajalci drugih oblik:  
 Izvajalci praktičnega  
 usposabljanja:

**Vrsta predmeta/Course type:** Obvezni/Compulsory

|                          |                      |                         |
|--------------------------|----------------------|-------------------------|
| <b>Jeziki/Languages:</b> | Predavanja/Lectures: | Angleščina, Slovenščina |
|                          | Vaje/Tutorial:       |                         |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

**Prerequisites:**

|                        |                                |
|------------------------|--------------------------------|
| Vpis v letnik študija. | Enrolment into the study year. |
|------------------------|--------------------------------|

**Vsebina:**

**Content (Syllabus outline):**

- Definicija tekstilij kot materialov iz vlaknotvornih polimerov in umestitev med druge materiale;
- Razvrstitev tekstilnih materialov in izdelkov glede na področja uporabe, njihovo zgradbo in lastnosti;
- Uporaba sodobnih tehnologij v tekstilstvu;
- Gospodarski pomen tekstilne in usnjarske industrije in primerjava z drugimi panogami;
- Vpetost tekstilnih znanj na druga gospodarska področja.

- Definition of textiles as materials from fibre-forming polymers and their positioning among other materials;
- Classification of textile materials and products according to their scope, structure and properties;
- Use of modern technologies in textiles;
- Economic importance of the textile and leather industries and their relative importance compared with other industries;
- Involvement of textile skills in other areas of the economy.

**Temeljna literatura in viri/Readings:**

- SENTHIL KUMAR, R. Textiles for Industrial Applications. New York : CRC Press, 2013, 406 str.;
- KUNDRIĆ, P., KOSTIĆ, M., MEDOVIĆ, A., MIHAILOVIĆ, T., ASANOVIĆ, K. and SRETKOVIĆ, L. Tekstilni materijali, udžbenik. Beograd: Tehnološko-metalurški fakultet, 2008;
- IRSPIN – Industrijski razvojni center slovenske predilne industrije; STTP – Slovenska tekstilna tehnološka platforma. Strateška raziskovalna agenda 2007–2013. [online]. Dostopno na: [http://www.irspin.si/catalog/datoteke/SRA\\_Final\\_slike\\_1.pdf](http://www.irspin.si/catalog/datoteke/SRA_Final_slike_1.pdf) [15.9.2014].
- Izbrani članki iz domačih in tujih strokovnih revij, dostopnih v knjižnici Oddelka za tekstilstvo NTF in v elektronskih revijah ter spletne strani / Selected papers from domestic and foreign professional journals available in the library of the Department of Textiles, Faculty of Natural Sciences and Engineering as well as electronic magazines and websites.

#### **Cilji in kompetence:**

|                                                                                                                                                                                                                                                                                                                                                                                         |
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| <b>Cilji:</b> <ul style="list-style-type: none"> <li>• Razširitev poznavanja uporabe tekstilij izven področja oblačilne industrije;</li> <li>• Opredelitev pomena in vloge tekstilij na različnih gospodarskih področjih;</li> <li>• Prepoznavanje uporabnosti tekstilnega strokovnega znanja v drugih gospodarskih panogah.</li> </ul>                                                 |
| <b>Kompetence:</b> <ul style="list-style-type: none"> <li>• Sposobnost razvrstitve tekstilij po področjih uporabe;</li> <li>• Poznavanje ekonomskih značilnosti in posebnosti tekstilne panoge v Evropi in svetu;</li> <li>• Sposobnost razmišljanja in povezovanja tekstilnega strokovnega znanja z namenom pospeševanja interdisciplinarnega prenosa znanj v druge stroke.</li> </ul> |

#### **Objectives and competences:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <b>Aims:</b> <ul style="list-style-type: none"> <li>• Expanding the knowledge of the use of textiles beyond the scope of the clothing industry;</li> <li>• Defining the meaning and the role of textiles in various economic sectors;</li> <li>• Recognising of the usefulness of textile expertise in other industries.</li> </ul>                                                                                                       |
| <b>Competencies:</b> <ul style="list-style-type: none"> <li>• The capability of the classification of textiles by application areas;</li> <li>• The knowledge of the economic characteristics and peculiarities of the textile industry in Europe and the world;</li> <li>• The ability to think about and integrate textile expertise with the aim of promoting interdisciplinary transfer of knowledge to other disciplines.</li> </ul> |

#### **Predvideni študijski rezultati:**

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| Diplomant pridobi: <ul style="list-style-type: none"> <li>• Celosten vpogled v tekstilno stroko in pozna vpetost oziroma prepletenost stroke z drugimi gospodarskimi področji;</li> <li>• Sposobnost širšega razmišljanja o različnih možnostih uporabe tekstilnih materialov za nadaljnjo raziskovalno in poklicno pot.</li> </ul> |
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#### **Intended learning outcomes:**

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| The graduate obtains: <ul style="list-style-type: none"> <li>• Comprehensive insight into the textile industry and knowledge about the involvement or the entanglement of the profession with other economic sectors;</li> <li>• An ability to think more broadly about the various possibilities of the application of textiles to other research and careers.</li> </ul> |
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#### **Metode poučevanja in učenja:**

|             |
|-------------|
| Predavanja. |
|-------------|

#### **Learning and teaching methods:**

|           |
|-----------|
| Lectures. |
|-----------|

#### **Načini ocenjevanja:**

|                   |
|-------------------|
| Pisni izpit       |
| Seminarska naloga |

#### **Delež/Weight**

|         |
|---------|
| 60,00 % |
| 40,00 % |

#### **Assessment:**

|              |
|--------------|
| Written exam |
| Seminar work |

#### **Reference nosilca/Lecturer's references:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <b>Tatjana Rijavec:</b> <ol style="list-style-type: none"> <li>1. RIJAVEC, Tatjana. Tekstilne surovine, Osnove. Ponatis. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2014; RIJAVEC, Tatjana. Visokozmogljiva vlakna na trgu. V: BUKOŠEK, Vili, et al. Tekstilije v gumenih kompozitih;</li> <li>2. RIJAVEC, Tatjana. Medical textiles. Ljubljana; Banja Luka: Faculty of Natural Sciences and Engineering, Department of Textiles, 2014;</li> </ol> |
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3. RIJAVEC, Tatjana. Načrtovanje tekstilij in udobnost oblačil. Del 1, Visokošolski strokovni študij Proizvodnja tekstilij in oblačil : ppt predstavitev. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2013. 149 str.

**Brigita Tomšič:**

1. TOMŠIČ, B., SIMONČIČ, B. Oblikovanje "pametnih" tekstilij z odzivnimi hidrogeli. Tekstilec, 2014, vol. 57, no. 2, str. 164-171;
2. SIMONČIČ, B., TOMŠIČ, B., OREL, B., JERMAN, I. Tekstilija kot navdih iz narave. Tekstilec, 2010, letn. 53, št. 10/12, str. 294-306;
3. TOMŠIČ, Brigita, KRIŽMAN LAVRIČ, P., SIMONČIČ, B., OREL, B., JOCIĆ, D. Sol-gel technology for functional finishing of PES fabric by stimuli-responsive microgel. Journal of sol-gel science and technology, 2012, vol. 61, no. 3, str. 463-476;
4. SIMONČIČ, B., TOMŠIČ, B., OREL, B., JERMAN, I. Biodegradation of cellulose fibers and its inhibition by chemical modification. V: ITO, R. (ur.), MATSUO, Y. (ur.). Handbook of carbohydrate polymers : development, properties and applications, (Polymer science and technology series). New York: Nova Science Publishers, cop. 2010, ch. 7, str. 237-277;
5. SIMONČIČ, B., TOMŠIČ, B. Biorazgradnja tekstilnih vlaken in njihova protimikrobna zaščita. 1. izd. V Ljubljani: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2010, 94 str.

# KEMIJA 1

**Predmet:** Kemija 1  
**Course title:** Chemistry 1  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068727

**Koda učne enote na članici/UL Member course code:** 10019

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 60                      | 0                   | 30                 | 0                                       | 0                                                   | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Urška Lavrenčič Štangar

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into the study year.

**Vsebina:**

- Metode, definicije in osnovni pojmi v kemiji;
- Atomi, molekule, ioni in spojine;
- Kemijske reakcije splošno in reakcije v vodnih raztopinah;
- Termokemija;
- Elektronska zgradba atoma, periodičnost, kemijska vez in zgradba molekul;
- Plini, tekočine in trdne snovi in medmolekulske sile;
- Raztopine;
- Osnove kemijske kinetike;
- Kemijsko ravnotežje;
- Kisline in baze;

**Content (Syllabus outline):**

- Methods, definitions and fundamental concepts in chemistry;
- Atoms, molecules, ions and compounds;
- Chemical reactions in general and reactions in aqueous solutions;
- Thermochemistry;
- Electronic structure of atom, periodicity, chemical bond and structure of molecules;
- Gases, liquids, solids and intermolecular forces;
- Solutions;
- Fundamentals of chemical kinetics;
- Chemical equilibrium;

|                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Spontanost kemijskih reakcij;</li> <li>• Elektrokemija;</li> <li>• Atomsko jedro in jedrska kemija;</li> <li>• Osnove kemijskega računanja (množina snovi, elementna analiza, računanje množinskega razmerja pri reakcijah v plinskih zmesih in raztopinah).</li> </ul> | <ul style="list-style-type: none"> <li>• Acids and bases. Spontaneity of chemical reactions;</li> <li>• Electrochemistry;</li> <li>• Atomic nucleus and nuclear chemistry;</li> <li>• The fundamental of stoichiometry (amount of substance, elemental analysis, calculation of amount ratio in chemical reactions taking place in gases or solutions).</li> </ul> |
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#### Temeljna literatura in viri/Readings:

- B. ČEH: Splošna in anorganska kemija. Zbirka pojmov in nalog z odgovori in rešitvami, Univ. založba, Ljubljana, 2005, 240 str.;
- B. ČEH: Kemijsko računanje in osnove kemijskega ravnotežja. Univ. založba, Ljubljana, 2006, 198 str.;
- F. LAZARINI, J. BRENČIČ: Splošna in anorganska kemija, DZS, Ljubljana, 2005, 557 str.

#### Dodatna literatura:

- R.H. PETRUCCI, F.G. HERRING, J.D. MADURA, C. BISSONNETTE, General Chemistry, Principles and modern applications, deseta izdaja, Pearson, Toronto, 2011, 1303 str.

#### Cilji in kompetence:

Pri predmetu se študentje naučijo temeljnih prijemov in konceptov, ki so potrebni za razumevanje lastnosti in obnašanja anorganskih in organskih snovi.

#### Objectives and competences:

The students learn the basic concepts of chemistry and stoichiometry with the aim of understanding of the properties and behavior of the inorganic and organic substances.

#### Predvideni študijski rezultati:

##### Znanje in razumevanje:

- Razvijanje sposobnosti lastnega učenja osnovnih predmetov in nato prilagajanje ter uporaba znanja na svojem strokovnem področju.

#### Intended learning outcomes:

##### Knowledge and understanding:

- The abilities of acquiring and sharing of fundamental chemical knowledge and concepts and linking them with other (related) topics.

#### Metode poučevanja in učenja:

Predavanja, pisanje na tablo, PowerPoint predstavitev, prikazovanje kemijskih eksperimentov.

#### Learning and teaching methods:

Oral lectures, blackboard writing skills, Power-Point presentation, demonstration of chemical experiments.

#### Načini ocenjevanja:

#### Delež/Weight

#### Assessment:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pisni izpit. Opravljen praktičen del vaj, pozitivna ocena vseh poročil iz vaj in pozitiven kolokvij so pogoj za pristop k izpitu. Pisni izpit je kombinacija vprašanj opisnega in izbirnega tipa. Dodatno študentom med predavanji ponudim tudi t.i. bonusne točke, ki se prištejejo k točkam, doseženim na pisnem izpitu. Bonusne točke lahko pridobijo s seminarskimi nalogami (do 10 %) ali pa s pravilnimi odgovori na vprašanja, zastavljena na predavanjih (vsak pravilni odgovor do 3 %). Seminar ni obvezen. Končna ocena predmeta je kombinacija ocene vaj in pisnega izpita. | 70,00 % | Written exam. The request to enter the exam are successfully finished exercises (containing practical course, positive marks of all reports and positive mark of written test. Written exam is combination of multiple choice and essay questions. Additional points are offered to the students for seminars (up to 10 points) or for correct answers to questions asked during the lectures (each correct answer up to 3 points). The seminar is not obligatory. The final mark is combination of marks obtained for exercises and written exam. |
| Vaje                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 30,00 % | Exercises                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

#### Reference nosilca/Lecturer's references:

1. ŠULIGOJ, A., LAVRENČIČ ŠTANGAR, U., RISTIĆ, A., MAZAJ, M., VERHOVŠEK, D., NOVAK TUŠAR, N., "TiO<sub>2</sub>-SiO<sub>2</sub> films from organic-free colloidal TiO<sub>2</sub> anatase nanoparticles as photocatalyst for removal of volatile organic compounds from indoor air", *Appl. Catal. B, Environ.* 184: 119-131, 2016.
2. PLIEKHOV, O., ARČON, I., NOVAK TUŠAR, N., LAVRENČIČ ŠTANGAR, U., "Photocatalytic activity of zirconium- and manganese-codoped titania in aqueous media : the role of the metal dopant and its incorporation site", *ChemCatChem*, 8: 2109-2118, 2016.
3. DZIK, P., VESELY, M., KETE, M., PAVLICA, E., LAVRENČIČ ŠTANGAR, U., NEUMANN-SPALLART, M., "Properties and application perspective of hybrid titania-silica patterns fabricated by inkjet printing", *ACS Appl. Mater. Interf.* 7: 16177-16190, 2015.
4. SOKLIČ, A., TASBIHI, M., KETE, M., LAVRENČIČ ŠTANGAR, U., "Deposition and possible influence of a self-cleaning thin TiO<sub>2</sub>/SiO<sub>2</sub> film on a photovoltaic module efficiency", *Catal. Today* 252: 54-60, 2015.
5. KETE, M., PAVLICA, E., FRESNO, F., BRATINA, G., LAVRENČIČ ŠTANGAR, U., "Highly active photocatalytic coatings prepared by a low-temperature method", *Environ. Sci. Pollut. Res.* 21: 11238-11249, 2014.

## KEMIJA 2

**Predmet:** Kemija 2  
**Course title:** Chemistry 2  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068728

**Koda učne enote na članici/UL Member course code:** 10020

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 30                 | 0                                       | 0                                                   | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Marjan Jereb

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v program.

**Prerequisites:**

Enrolment in the programme.

**Vsebina:**

**Struktura in reaktivnost v organski kemiji:**

- Kemijske vezi v organskih molekulah;
- Elektroni in tvorba vezi;
- Hibridne orbitale in vezi v molekulah;
- Načini zapisa formul organskih molekul;
- Poimenovanje organskih spojin;
- Funkcionalne skupine v organskih molekulah;
- Nasičene in nenasičene molekule;
- Halogenirane organske spojine;

**Izomerija organskih spojin:**

- Tipi izomerije;

**Reaktivnost organskih spojin:**

**Content (Syllabus outline):**

**Structure and reactivity in organic chemistry:**

- The chemical bonds in organic molecules;
- The electrons and bond formation;
- The hybrid orbitals and bonds in molecules;
- Ways of drawing formulas of the organic molecules;
- Naming of the organic compounds;
- Functional groups in organic molecules;
- The saturated and unsaturated molecules;
- The halogenated organic compounds;

**Isomerism of organic compounds:**

- Types of isomerism;

**Reactivity of organic compounds:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Pregled tipičnih reakcijskih intermediatov in njihove značilnosti;</li> <li>• Reakcijski mehanizmi;</li> <li>• Kislost in bazičnost organskih spojin;</li> </ul> <p><b>Pretvorbe organskih spojin:</b></p> <ul style="list-style-type: none"> <li>• Tipi kemijskih reakcij v organski kemiji;</li> <li>• Elektrofili in nukleofili;</li> <li>• Pretvorbe nasičenih spojin;</li> <li>• Pretvorbe nenasičenih spojin;</li> <li>• Pretvorbe aromatskih spojin;</li> </ul> <p><b>Makromolekule in polimeri:</b></p> <ul style="list-style-type: none"> <li>• Pregled in tipične lastnosti aminokislin, ogljikovih hidratov, peptidov in lipidov.</li> </ul> | <ul style="list-style-type: none"> <li>• Survey of the typical reaction intermediates and their properties;</li> <li>• Reaction mechanisms;</li> <li>• Acidity and basicity of organic compounds;</li> </ul> <p><b>Transformations of organic compounds:</b></p> <ul style="list-style-type: none"> <li>• Types of the chemical reactions in organic chemistry;</li> <li>• Electrophiles and nucleophiles;</li> <li>• Transformations of saturated compounds;</li> <li>• Transformations of unsaturated compounds;</li> <li>• Transformations of aromatic compounds;</li> </ul> <p><b>Macromolecules and polymers:</b></p> <ul style="list-style-type: none"> <li>• Survey and typical properties of amino acids, carbohydrates, peptides and lipides.</li> </ul> |
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#### Temeljna literatura in viri/Readings:

- M. TIŠLER, Organska kemija, DZS, Ljubljana, 1999;
- Š. TRŠEK, J. CERKOVNIK, Verige in obroči – Učbenik za gimnazije, Modrijan, Ljubljana, 2011;
- S. H. PINE, Organska kemija. Školska knjiga, Zagreb, 1984.

#### Cilji in kompetence:

Poznavanje osnovnega znanja iz organske kemije in obvladovanje praktičnega laboratorijskega znanja in spretnosti, ki se uporabljajo pri sintezi, izolaciji in čiščenju organskih spojin. Študenti pridobijo temeljno znanje organske kemije, ki je potrebno za to študijsko smer in je tudi dobra podlaga za nadaljevanja študija na magistrskem študijskem programu.

#### Objectives and competences:

Achieving basic knowledge of organic chemistry and managing practical laboratory techniques and skills used in the synthesis, isolation and purification of organic compounds. The students acquire fundamental knowledge of organic chemistry needed in this field of study, and this course is a good basis for continuation of the study on the Master's Degree.

#### Predvideni študijski rezultati:

##### Znanje in razumevanje:

- Študent pridobi osnovno znanje s področja organske kemije.
- Organske spojine zna razvrstiti v razrede spojin (alkani, alkeni, karbonili, aromati,...), obvlada imenovanje enostavnih spojin in pozna njihovo zgradbo.
- Pridobi znanje o različnih zapisih formul in na osnovi strukture lahko sklepa o določenih lastnostih spojin.
- Zna osnove stereokemije in je sposoben primerjati stabilnost konformerov, pozna osnovne reakcijske intermediate in njihove tipične značilnosti.
- Obvlada osnovne tipe mehanizmov organskih reakcij in razlikuje elektrofile in nukleofile in ima določeno znanje o njihovi reaktivnosti.
- Prepozna makromolekule in polimere in njihove bistvene značilnosti in pozna osnovne gradnike makromolekul.
- Z uporabo osnovnih laboratorijskih tehnik je sposoben samostojno izvesti enostavne postopke sinteze, izolacije in čiščenja organskih spojin.

#### Intended learning outcomes:

##### Knowledge and understanding:

- The student acquires a basic knowledge in the field of organic chemistry.
- The student is able to classify organic compounds into classes of compounds (alkanes, alkenes, carbonyls, aromatics,...), is able to designate simple organic compounds, and has knowledge on their structure.
- Acquires knowledge on various possible drawings of formulas, and is able to infer on certain properties of the compounds.
- Has basic knowledge on stereochemistry, and is able to compare the stability of the conformers, knows the basic reaction intermediates and their typical properties.
- Understands the basic types of mechanisms of organic reactions, and is able to distinguish electrophiles and nucleophiles and has certain knowledge on their reactivity.
- Student is able to recognize macromolecules and polymers and their main properties, and knows the monomers of these macromolecules.
- The student is able to independently perform a simple method of synthesis, isolation and purification of organic compounds by using the basic laboratory techniques.

**Metode poučevanja in učenja:**

Predavanja, seminarske vaje, laboratorijsko delo.

**Learning and teaching methods:**

Lectures, seminars, laboratory work.

**Načini ocenjevanja:****Delež/Weight****Assessment:**

|                     |         |                 |
|---------------------|---------|-----------------|
| Laboratorijsko delo | 30,00 % | Laboratory work |
| Pisni izpit         | 70,00 % | Examination     |

**Reference nosilca/Lecturer's references:**

- JEREB, Marjan, DOLENC, Darko. Electrophilic trifluoromethylthiolation of thiols with trifluoromethanesulfenamide. RSC Advances, 2015, vol. 5, iss. 72, str. 58292-58306, doi: 10.1039/C5RA07316B, [COBISS.SI-ID 1536347331];
- JEREB, Marjan, VRAŽIČ, Dejan. Iodine-catalyzed disproportionation of aryl-substituted ethers under solvent-free reaction conditions. Organic and Biomolecular Chemistry, 2013, vol. 11, no. 12, str. 1978-1999, doi: 10.1039/c3ob27267b. [COBISS.SI-ID 36563973];
- JEREB, Marjan. Highly atom-economic, catalyst- and solvent-free oxidation of sulfides into sulfones using 30% aqueous H<sub>2</sub>O<sub>2</sub>. Green Chemistry, 2012, vol. 14, no. 11, str. 3047-3052, doi: 10.1039/C2GC36073J. [COBISS.SI-ID 36306437];
- JEREB, Marjan, LAKNER, Janja. Synthesis of trimethylsilyl carboxylates by HMDS under solvent-free conditions. Tetrahedron, 2016, vol. 72, iss. 37, str. 5713-5723, doi: 10.1016/j.tet.2016.08.003. [COBISS.SI-ID 1537061315]

# KOMPOZICIJA PLETIV IN PLETENIN

**Predmet:** Kompozicija pletiv in pletenin  
**Course title:** Knitted structures  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068735

**Koda učne enote na članici/UL Member course code:** 10121

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Alenka Pavko Čuden

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/ Compulsory

**Jeziki/Languages:**

Predavanja/Lectures:

Angleščina, Slovenščina

Vaje/Tutorial:

Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje  
študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

- Uvod v votkovne pletilske vezave; shema votkovnega pletenja; zračna slika; leva in desna zanka, lovilna petlja, založena nit; vzorčna patrona, tehnična patrona, polaganje niti na igle;
- Programi za računalniško oblikovanje in konstruiranje votkovnih pletiv;
- Enostavno levo-desno pletivo, temeljne založene levo-desne vezave, temeljne lovilne levo-desne vezave; temeljne desno-desne vezave; temeljne lovilne desno-desne vezave;
- Uvod v zahtevnejše votkovne pletilske vezave, razlika med eksperimentalnim in industrijskim votkovnim pletenjem;

**Content (Syllabus outline):**

- Introduction to weft knitted structures; weft knitting scheme; structural representation; front and rear loop, tuck, float; point paper design; technical notation; knitting yarn path;
- Computer programmes for the design and construction of weft knitted fabrics;
- Single weft knitted structures, single jacquard, single tuck structures, rib/double structures, double tuck structures;
- Introduction to advanced weft knitted structures; difference between experimental and industrial weft knitting;

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <ul style="list-style-type: none"> <li>• Levo-leve vezave, interlok, premikane vezave, luknjičaste in reliefne vezave, zložljive vezave, dvofonturni žakar;</li> <li>• Uvod v snutkovne pletilske vezave; shema snutkovnega pletenja; odprta in zaprta zanka; polaganje niti na igle, gibanje polagalnikov;</li> <li>• Temeljne snutkovne vezave, sestavljene enosnutkovne vezave, večsnutkovne vezave; kombinacije temeljnih snutkovnih vezav;</li> <li>• Uvod v zatevnejše snutkovne vezave;</li> <li>• Zahtevnejše snutkovne vezave: sestavljene vezave, luknjičaste vezave in mreže, stezniške vezave, lasate vezave, desno-desne vezave.</li> </ul> | <ul style="list-style-type: none"> <li>• Links-links structures, interlock, racked structures; ajour and textured structures, foldable structures, double jacquard;</li> <li>• Introduction to warp knitted structures; warp knitting scheme; open and closed loop; yarn path; lapping movement;</li> <li>• Basic warp knitted structures; combined warp knitted structures; multi-warp knitted structures; combinations of basic warp knitted structures;</li> <li>• Introduction to advanced warp knitted structures;</li> <li>• Advanced warp knitted structures; combined warp knitted structures; nets and mesh structures; pile structures; double warp knitted structures.</li> </ul> |
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### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• PAVKO-ČUDEN, A., Kompozicija pletenin 1 (skripta), NTF, Oddelek za tekstilstvo, Ljubljana 2008;</li> <li>• RAZ, S., Flat knitting technology, Universal Maschinenfabrik, Westhausen 1993;</li> <li>• RAZ, S., Flat knitting : The new generation, Meisenbach, Bamberg 1991;</li> <li>• LASIĆ V., Vezovi pletiva, Zagreb 1998.</li> </ul> |
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### Cilji in kompetence:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Cilji:</b></p> <ul style="list-style-type: none"> <li>• Študenti se seznani s konstrukcijo in tehniko izdelave enostavnih in zahtevnejših pletenih struktur.</li> <li>• Spoznajo enostavne in zahtevnejše pletilske vezave, vpliv preje, konstrukcijskih parametrov pletiva in vezave na videz, lastnosti in namembnost pletiva.</li> <li>• Seznanijo se z računalniškim programom za oblikovanje pletiv.</li> </ul> <p><b>Kompetence:</b></p> <ul style="list-style-type: none"> <li>• Poznavanje in razumevanje enostavnih in zahtevnih pletilskih tehnik;</li> <li>• Poznavanje temeljnih in zahtevnejših pletilskih vezav;</li> <li>• Poznavanje temeljnih funkcij računalniških programov za oblikovanje in konstruiranje pletiv;</li> <li>• Sposobnost identifikacije temeljnih in zahtevnejših pletenih struktur;</li> <li>• Sposobnost povezovanja znanja z različnih področij (oblikovanje, moda, materiali, preskušanje tekstilij, kakovost);</li> <li>• Poznavanje strokovne terminologije s področja pletenja.</li> </ul> |
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### Objectives and competences:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>• Students are introduced to the structure and manufacturing technique of basic and advanced knitted structures.</li> <li>• They get to know basic and advanced knitted structures, and yarn, construction and knitted structure impact on the appearance, properties and use of knitted fabrics.</li> <li>• They get acquainted with a computer programme for knitted fabric design.</li> </ul> <p><b>Competences:</b></p> <ul style="list-style-type: none"> <li>• Knowing and understanding simple and advanced knitting techniques;</li> <li>• Knowing basic and advanced knitted structures;</li> <li>• Knowing basic functions of computer programmes for the design and construction of knitted structures;</li> <li>• Ability to identify basic and advanced knitted structures;</li> <li>• Ability to merge knowledge from different fields (design, fashion, materials, textile testing, quality);</li> <li>• Knowledge of technical terminology in the field of knitting.</li> </ul> |
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### Predvideni študijski rezultati:

|                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Obvladovanje temeljnih pletilskih vezav;</li> <li>• Razumevanje različnih tehnik pletenja;</li> <li>• Poznavanje računalniških programov za oblikovanje in konstruiranje pletiv;</li> <li>• Poznavanje simbolnih/shematskih zapisov pletilskih vezav;</li> <li>• Poznavanje lastnosti pletiv v različnih vezavah;</li> </ul> |
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### Intended learning outcomes:

|                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Mastering basic knitted structures;</li> <li>• Understanding various knitting techniques;</li> <li>• Knowing computer programmes for the design and construction of knitted fabrics;</li> <li>• Knowing the symbolic/schematic representation of knitted structures;</li> <li>• Knowing the properties of knitted fabrics in different structures;</li> </ul> |
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|                                                                                                                                                                     |                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Razumevanje vpliva različnih konstrukcijskih parametrov pletiv na doseganje različnih vizualnih efektov in otipa.</li> </ul> | <ul style="list-style-type: none"> <li>Understanding the impact of various structural parameters of knitted fabrics to achieve various visual effects and touch.</li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                   |                                                           |
|-------------------------------------------------------------------|-----------------------------------------------------------|
| <b>Metode poučevanja in učenja:</b>                               | <b>Learning and teaching methods:</b>                     |
| Predavanja, simbolno zapisovanje vezav, praktično delo: pletenje. | Lectures, structures' notation, practical work: knitting. |

|                               |                     |                                |
|-------------------------------|---------------------|--------------------------------|
| <b>Načini ocenjevanja:</b>    | <b>Delež/Weight</b> | <b>Assessment:</b>             |
| Pisni izpit                   | 60,00 %             | Written exam                   |
| Predstavitve praktičnega dela | 40,00 %             | Presentation of practical work |

**Reference nosilca/Lecturer's references:**

- PAVKO-ČUDEN, A., SLUGA, F.. Measuring loop lengths of elasticised knitted fabrics. The journal of The Textile Institute, 2015, vol. 106, no. 3, str. 225-235;
- RANT, D., CIOBANU, R.a, BLAGA, M., PAVKO-ČUDEN, A.. Compression on foldable links-links knitted structures. Tekstil ve konfeksiyon dergisi, 2014, vol. 24, no. 4, str. 349-355;
- PAVKO-ČUDEN, A., STANKOVIĆ ELESINI, U.. Yarn diameter in elasticized knitted structures. Industria textil&#230;a, 2013, vol. 64, no. 6, str. 313-320;
- PAVKO-ČUDEN, A., HLADNIK, A., SLUGA, F.. Impact of material, structure and relaxation process parameters of elasticizedsingle-knitted fabrics on loop length. Textile research journal, 2013, vol. 83, no. 1, str. 56-65

# KOMPOZICIJA TKANIN

**Predmet:** Kompozicija tkanin  
**Course title:** Woven structures  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068736

**Koda učne enote na članici/UL Member course code:** 10125

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Matejka Bizjak

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija. Opravljene individualne vaje.

**Prerequisites:**

Enrolment in the study year. Passed individual exercises.

**Vsebina:**

- Oblikovni in konstrukcijski tehnološki parametri tkanin: preje in njihove značilnosti (vrsta preje, finost, lastnosti...), gostota osnove in votka, vezave in njihovi medsebojni vplivi;
- Temeljne vezave in njihove izpeljanke: platno in izpeljanke (panama, rips), keper in izpeljanke (navadni, ojačani, večredni, koničasti, kljukasti, lomljeni, odstavljeni...), atlas in izpeljanke (pravilni, nepravilni, mešani ojačani...) in druge specifične vezave (vafel, kanava, pulover, zrnčaste vezave, motivi v temelju, krep...);

**Content (Syllabus outline):**

- Design and structural technological parameters of fabrics: yarns and their characteristics (type of yarn, fineness, properties ..), density of warp and weft, woven structures and their interactions;
- Basic woven structures and their derivatives: plain weave and derivatives, twill and derivatives, satin and derivatives and other specific woven structures;
- Computer system Arah-weave: presentation of basic menus; work with yarns (yarn type - single, twisted, speciality, monochrome and multi-colored yarns, twist, simulation, mechanical

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Računalniški sistem Arah-weave: predstavitev osnovnih menijev; delo s prejami (vrsta preje - navadna, sukanec, efektni sukanec, enobarvni in večbarvni sukanci, število zavojev, simulacija, mehanska poobdelava....); delo z gostotami, vzorcem snovanja in tkanja (gostote osnove in votka – spremembe, vzorec snovanja, simetrije, asimetrije, centriranje vzorcev);</li> <li>• Delo z vezavami (uporaba vezav iz banke vezav, konstrukcija novih, lastnih vezav, tvorba lastnih vezavnih baz konstrukcija vezav, obvladovanje orodij za avtomatizacijo dela....);</li> <li>• Osnovni principi vzorčenja tkanin: vzorčenje s prejami in barvo niti, vzorčenje z vezavo, vzorčenje z barvo niti in vezavo; principi ostrega vezanja, flotiranja niti, senčenja;</li> <li>• Osnove uporabe barvne metrike pri tkaninah (osnove optičnega mešanja barv na tkaninah, napovedovanje barvnih efektov);</li> <li>• Računalniški sistem Arah-drape: predstavitev osnovnih menijev; predogled vzorcev tkanin na objektih v tridimenzionalni obliki (srajca, fotelj ...).</li> </ul> | <p>finishing ...); work with densities, threading and weaving (densities of warp and weft - changes, pattern design, symmetry, asymmetry, centering of patterns);</p> <ul style="list-style-type: none"> <li>• Working with woven structures (using woven structures from database, designing new woven structures, forming own database, composing woven structures, controlling tools for automating work ... ..);</li> <li>• Basic principles of woven fabrics' design: patterning with colours, patterning with yarns, patterning with yarns and colours; principles of yarn flotation and shading;</li> <li>• Basics of using color metrics for woven fabrics (basics of optical mixing of colors on fabrics, predicting color effects);</li> <li>• Arah-drape computer system: presentation of basic menus; previewing fabric designs on objects in three-dimensional form (shirt, armchair ...).</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Temeljna literatura in viri/Readings:

- LAMPRET, I. Vezave tkanin. Listne vezave. Kranj : Tekstilni center, 1976;
  - OREŠKOVIĆ, V., in HAĐINA, S. Vezovi i konstrukcije tkanina listovnog tkanja. Bihać : Viša tehnička škola Univerziteta, 1982;
  - HENNING, H. Gewebe Technik. Leipzig : VEB Fachbuchverlag, 1965;
  - ŽIBERNA-ŠUJICA, M., in GAČNIK, A. Kompozicija in uporabnost tkanin. Maribor : Visoka tehniška šola, 1979;
  - DOBNIK-DUBROVSKI, P. Računalniško konstruiranje listnih tkanin : navodila za vaje. Maribor : Fakulteta za strojništvo, Oddelek za tekstilstvo, 2004;
  - ArahWeave 4.1a : User's Manual. Ljubljana : Arahne, 2005;
  - GORENŠEK, M., SEŠLAR, V., DIMITROVSKI, K., GOLOB, V., in STRNAD, S. V Textile and Colour. Firenze : Edizioni Tassinari, 2004;
  - DIMITROVSKI, K. Barvno oblikovanje pestrih tkanin. V Interdisciplinarnost barve. Del 2. Ur. S. Jeler in M. Kumar. Maribor : Društvo koloristov Slovenije, 2003, str. [455]–475;
  - HORN, E. C. Geometric Symmetry in Patterns and Tilings. Cambridge : Woodhead Publishing, 2000.
- Literatura je dosegljiva v knjižnici Oddelka za tekstilstvo, grafiko in oblikovanje / References can be found at the Library of the Department of Textiles, Graphic arts and design.

#### Cilji in kompetence:

##### Cilji:

- Spoznavanje tkanih struktur; lastnosti, ki izvirajo iz strukture, njihove prednosti in pomanjkljivosti.
- Spoznavanje temeljnih principov vzorčenja tkanin in računalniškega vzorčenja tkanin.

##### Predmetno specifične kompetence:

- Spoznavanje temeljnih tkalskih struktur, lastnostmi, ki iz njih izvirajo, njih prednosti in pomanjkljivosti;
- Poznavanje računalniških programov za računalniško podprto vzorčenje tkanin;
- Poznavanje temeljnih oblik barvnega in ostalih tipov vzorčenja;

#### Objectives and competences:

##### Objectives:

- Knowing woven structures; properties deriving from the structure, their advantages and disadvantages;
- Learning about basic principles of patterning and computer design of woven fabrics.

##### Subject-specific competences:

- Knowing the basic weaving structures, the properties derived from them, their advantages and disadvantages;
- Mastering computer programs for computer-assisted design of fabrics;

|                                                                                                                                                          |                                                                                                                                                                                                                                     |
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| <ul style="list-style-type: none"> <li>• Uporaba barvne metrike v tkalstvu;</li> <li>• Računalniška vizualizacija tkanin na končnih izdelkih.</li> </ul> | <ul style="list-style-type: none"> <li>• Knowing the basic types of color and other types of patterning;</li> <li>• Use of color metrics in weaving;</li> <li>• Computerized visualization of fabrics on final products.</li> </ul> |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <b>Predvideni študijski rezultati:</b>                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Intended learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Znanje in razumevanje:</b> <ul style="list-style-type: none"> <li>• Razumevanje tkanih struktur.</li> <li>• Razumevanje in poznavanje osnovnih principov vzorčenja tkanin.</li> <li>• Razumevanje optičnega mešanja barv v tkaninah.</li> <li>• Znanje računalniško podprtega vzorčenja.</li> </ul> <b>Uporaba:</b> <ul style="list-style-type: none"> <li>• Uporaba doseženih znanj pri načrtovanju in izdelavi kolekcij tkanin.</li> </ul> | <b>Knowledge and understanding:</b> <ul style="list-style-type: none"> <li>• Understanding woven structures.</li> <li>• Understanding and knowing basic principles of woven fabric patterning and design.</li> <li>• Understanding the optical blending of colors in woven fabrics.</li> <li>• Knowledge of computer-assisted design.</li> </ul> <b>Application:</b> <ul style="list-style-type: none"> <li>• Use of knowledge gained in the design and production of woven fabrics' collection.</li> </ul> |

|                                                                                                        |                                                                                                |
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| <b>Metode poučevanja in učenja:</b>                                                                    | <b>Learning and teaching methods:</b>                                                          |
| Predavanja, laboratorijske vaje v računalniški učilnici in laboratoriju za elektronsko podprto tkanje. | Lectures, lab work in a computer classroom and an electronically supported weaving laboratory. |

|                            |                     |                    |
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| <b>Načini ocenjevanja:</b> | <b>Delež/Weight</b> | <b>Assessment:</b> |
| Pisni izpit                | 100,00 %            | Written exam       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <b>Reference nosilca/Lecturer's references:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <ol style="list-style-type: none"> <li>1. PAJAGIČ BREGAR, G., BIZJAK, M. Structures and colours of coptic textiles from the National Museum of Slovenia. Tekstilec, 2015, vol. 58, no. 3, str. 177-190;</li> <li>2. ŠAJN GORJANC, D., BIZJAK, M.. Impact of pre-finishing process on comfort characteristics of stretchable cotton fabric. Journal of engineered fibers and fabrics, 2015, vol. 10, no. 3, str. 57-68;</li> <li>3. ŠAJN GORJANC, D., BIZJAK, M. The influence of constructional parameters on deformability of elastic cotton fabrics. Journal of engineered fibers and fabrics, 2014, vol. 9, no. 1, str. 38-46;</li> <li>4. BIZJAK, M., PAVKO-ČUDEN, A.. Moisture management of terry towels. V: 12th World Textile Conference Autex 2012, 13th -15th June 2012, Zadar, Croatia. Faculty of Textile Technology, University of Zagreb, 2012, str. 1183-1188</li> </ol> |

# KREATIVNOST IN RAZVOJ IZDELKA

|                                   |                                    |
|-----------------------------------|------------------------------------|
| <b>Predmet:</b>                   | Kreativnost in razvoj izdelka      |
| <b>Course title:</b>              | Creativity and product development |
| <b>Članica nosilka/UL Member:</b> | UL NTF                             |

|                                                       |                       |               |                 |                  |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

|                                                            |         |
|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0068729 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 11037   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 30                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Alenka Pavko Čuden

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       |                         |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
Za pristop h končnemu izpitu je pogoj opravljen seminar.

**Prerequisites:**

Enrolment into the study year.  
For the final exam, a completed seminar work is a prerequisite.

**Vsebina:**

**Predavanja:**

- Uvod: pomen kreativnosti pri razvoju novih izdelkov, kreativnost in inženirsko oblikovanje, omejitve in nasprotja v oblikovanju in tehnologiji;
- Ideje, kreativnost, inovacije, izboljšave in izumi, kreativni proces, metode in tehnike pospeševanja kreativnosti;
- Nov izdelek, faze razvoja novega izdelka, sinergija oblike in funkcije izdelka, značilnosti uspešnih izdelkov.

**Content (Syllabus outline):**

**Lectures:**

- Introduction: the importance of creativity in new product development, creativity and engineering design, limitations and contradictions in design and technology;
- Ideas, creativity, innovation, improvements and inventions, the creative process, methods and techniques of stimulating creativity;
- New products, the phases of new product development;

|                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                             |
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| <b>Seminar:</b> <ul style="list-style-type: none"> <li>Študij primerov: analiza uspešnih industrijskih izdelkov z vidika uporabnosti, varnosti, estetike in etike.</li> </ul> | <ul style="list-style-type: none"> <li>The synergy of form and function of the product, characteristics of successful products.</li> </ul> <b>Seminar:</b> <ul style="list-style-type: none"> <li>Case studies: analyses of successful industrial products in terms of usability, safety, aesthetics and ethics.</li> </ul> |
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### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>PEČJAK, V. Pot do novih idej : Tehnike kreativnega mišljenja. 2001, New Moment, No. 16, Ljubljana, 176 str.;</li> <li>PEČJAK, V., ŠTRUKELJ, M. Ustvarjam, torej sem. 2013, Mohorjeva založba, Celovec, 239 str.;</li> <li>FORTY, A. Objects of Desire: Design and Society Since 1750. 2001, Thames and Hudson, London, 256 str.;</li> <li>LINDWELL, D., MANACSA, G. Deconstructing Product Design: Exploring the Form, Function, Usability, Sustainability, and Commercial Success of 100 Amazing Products. 2011, Rockport Publishers, London, 240 str.;</li> <li>LINDWELL, W., HOLDEN, K., BUTLER, J. Universal Principles of Design, Revised and Updated: 125 Ways to Enhance Usability, Influence Perception, Increase Appeal, Make Better Design Decisions, and Teach through Design. 2010, Rockport Publishers, London, 272 str.;</li> <li>NORMAN, D.A. The Design of Everyday Things. 2002, Basic Books, New York, 288 str.;</li> <li>NORMAN, D. The Design of Future Things. 2007, Basic Books, New York, 240 str.;</li> <li>NORMAN, D. Emotional design. 2005, Basic books, New York, 272 str.;</li> <li>PAPANEK, V. Design for the Real World: Human Ecology and Social Change. 2009, Academy Chicago Publishers, Chicago, 418 str.</li> </ul> |
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### Cilji in kompetence:

|                                                                                                                                                                                                                                                                                                                                                                        |
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| <ul style="list-style-type: none"> <li>Razumevanje pomena kreativnosti pri razvoju novih izdelkov;</li> <li>Spoznavanje metod in tehnik zbiranja idej in pospeševanja kreativnosti;</li> <li>Razumevanje odnosa med obliko in funkcijo izdelka;</li> <li>Spoznavanje najuspešnejših in kulturnih industrijskih izdelkov s poudarkom na tekstilnih izdelkih.</li> </ul> |
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### Objectives and competences:

|                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <ul style="list-style-type: none"> <li>Understanding the importance of creativity in new product development;</li> <li>Learning methods and techniques for collecting ideas and stimulating creativity;</li> <li>Understanding the relationship between the form and function of a product;</li> <li>Learning the most successful and iconic industrial products, with an emphasis on textiles.</li> </ul> |
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### Predvideni študijski rezultati:

|                                                                                                                                                                                                                        |
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| <ul style="list-style-type: none"> <li>Sposobnost kreativnega inženirskega razmišljanja s pomočjo tehnik in metod za pospeševanje kreativnosti;</li> <li>Sposobnost vodenja procesa razvoja novega izdelka.</li> </ul> |
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### Intended learning outcomes:

|                                                                                                                                                                                                                                |
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| <ul style="list-style-type: none"> <li>The ability to engineer creative thinking using the techniques and methods of stimulating creativity;</li> <li>The ability to manage the process of new product development.</li> </ul> |
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### Metode poučevanja in učenja:

|                                                                                                                                                                                                                                           |
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| <ul style="list-style-type: none"> <li>Predavanja, podprta z interaktivnimi predstavitevami;</li> <li>Aktivno sodelovanje v razpravah na določeno temo;</li> <li>Samostojna priprava seminarske naloge z javno predstavitvijo.</li> </ul> |
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### Learning and teaching methods:

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| <ul style="list-style-type: none"> <li>Lectures, supported by interactive presentations;</li> <li>Active participation in discussions on a particular topic;</li> <li>Independent preparation of seminar work including a public presentation.</li> </ul> |
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### Načini ocenjevanja:

### Delež/Weight

### Assessment:

|                   |         |              |
|-------------------|---------|--------------|
| Pisni izpit       | 50,00 % | Written exam |
| Seminarska naloga | 50,00 % | Seminar work |

**Reference nosilca/Lecturer's references:**

- PAVKO-ČUDEN, Alenka. Dizajn i tehnologija tekstila - dva suprotstavljena pola?. Tekstil, 1997, let. 46, št. 1, str. 11-15;
- PAVKO-ČUDEN, Alenka. The future is paved by innovation: unconventional knitted structures. V : Proceedings. International Symposium in Knitting and Apparel - Textiles of the future : ISKA 2013, Faculty of Textiles - Leather and Industrial Management, Iași, Romania, str. 12-15;
- RANT, Darja, PAVKO-ČUDEN, Alenka. Design of multifunctional weft knitted structures with auxetic potential. V: 17th Techtextil symposium and 7th Avantex symposium, Frankfurt, Germany. Innovations for life. Frankfurt am Main: Messe Frankfurt Exhibition, 2013, str.27;
- PAVKO-ČUDEN, Alenka. Creative knitwear teaching. Knitting international, 2014, let. 120, št. 6, str. 25-27.

# MATEMATIKA 1

**Predmet:** Matematika 1  
**Course title:** Mathematics 1  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068730

**Koda učne enote na članici/UL Member course code:** 10023

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 90                      | 0                   | 90                 | 0                                       | 0                                                   | 180                                               | 12   |

**Nosilec predmeta/Lecturer:** Janko Bračič

Izvajalci predavanj:  
 Izvajalci seminarjev:  
 Izvajalci vaj:  
 Izvajalci kliničnih vaj:  
 Izvajalci drugih oblik:  
 Izvajalci praktičnega  
 usposabljanja:

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v 1. letnik.

**Prerequisites:**

Entering first year class.

**Vsebina:**

- Števila (naravna, cela, racionalna, realna števila; kompleksna števila);
- Matrike (računanje z matrikami, determinante, obrnljive matrike; sistemi linearnih enačb, Cramerjeva metoda, Gaussova metoda);
- Vektorji (vektorji v ravnini in prostoru, skalarni, vektorski in mešani produkt);
- Zaporedja in vrste (osnove, aritmetično in geometrijsko zaporedje, limita, vrste, konvergenca);
- Osnove funkcij ene spremenljivke (osnovni pojmi, računanje s funkcijami, inverz bijektivne

**Content (Syllabus outline):**

- Numbers (integers, rational and real numbers; complex numbers);
- Matrices (opeartions with matrices, determinants, inverse of a matrix; linear systems of equations, Cramer's method, Gauss' method);
- Vectors (vectors in plane and space, inner product, vector product and mixed product; lines and planes in three dimensional space);
- Sequences and series (basics, aritmetical and geometrical sequences, limits, series, convergence);

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>funkcije, pregled elementarnih funkcij; zveznost, limite);</p> <ul style="list-style-type: none"> <li>• Odvod (definicija odvoda in odvodi elementarnih funkcij, pravila za odvajanje; geometrijski pomen odvoda, naraščanje/padanje funkcij, konveksnost/konkavnost, stacionarne točke in njihova klasifikacija; uporaba odvoda, diferencial funkcije);</li> <li>• Integral (tabela nedoločenih integralov, tehnike integriranja: uvedba nove spremenljivke, metoda per-partes; integrali nekaterih racionalnih funkcij; definicija določenega integrala, uporaba določenega integrala pri računanju ploščin krivočrtnih likov in prostornin/površin rotacijskih teles, posplošeni integral).</li> </ul> | <ul style="list-style-type: none"> <li>• Basics of real functions (basic notions, operations between functions, inverse, outline of elementary functions, continuity, limits);</li> <li>• Derivative (definition of the derivative and derivatives of elementary functions, derivative rules, geometrical meaning of the derivative, increasing/decreasing of functions, convexity/concavity, stationary points and their classification; application of the derivative, differential of a function);</li> <li>• Integrals (table of indefinite integrals, different integration technics: new variable, per-partes; integration of rational functions; definition of definite integral, applications: area, volume, length, improper integral).</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Temeljna literatura in viri/Readings:

- BRAČIČ, Janko, Matematika za visokošolske strokovne programe, Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za materiale in metalurgijo, 2016;
- MIZORI-OBLAK, Pavlina, Matematika za študente tehnike in naravoslovja. Del 1, Ljubljana : Fakulteta za strojništvo, 2001.
- Spletna stran: <http://sl.wikipedia.org/wiki/Kategorija:Matematika>;
- Spletna stran: <http://mathworld.wolfram.com/>

### Cilji in kompetence:

Predmet obravnava osnove linearne algebre in teorije funkcij ene realne spremenljivke. Slušatelj se seznani z ustrežno teorijo in njeno uporabo. Večina izrekov je podanih brez dokazov. Poudarek je na učenju standardnih metod za reševanje problemov. Namen vaj je utrditev predavane snovi in pridobitev računske prakse, predmet pa je kot temeljni podlaga tako za strokovne kakor za druge osnovne predmete.

### Objectives and competences:

Basics of linear algebra and the theory of functions of one variable are presented. A student becomes familiar with some notions from the theory and get skilled in its use. The emphasis is on standard methods for solving problems related to linear algebra and real functions. The aim of tutorial is in practising. The subject is a basis for many other subjects.

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Razvijanje sposobnosti učenja osnovnih predmetov in prilagajanje ter uporaba znanja na svojem strokovnem področju.

### Intended learning outcomes:

#### Knowledge and understanding:

- Developing the ability of understanding of all basic subjects and adapting and using the knowledge in the own professional area.

### Metode poučevanja in učenja:

Predavanja in vaje s praktičnimi računskimi primeri.

### Learning and teaching methods:

Lectures and tutorials with concrete numerical examples.

### Načini ocenjevanja:

### Delež/Weight

### Assessment:

|                                                                                                       |         |                                                                                                |
|-------------------------------------------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------|
| Pisni izpit, ustno izpraševanje, naloge, projekt. Opravljeni kolokviji so enakovredni pisnemu izpitu. | 70,00 % | Examination, oral, coursework, project. Four partial exams are equivalent to the writing exam. |
| Teoretični izpit. Teoretični izpit je test, na katerem se preveri poznavanje in razumevanje teorije.  | 30,00 % | Theoretical test. The aim of the theoretical test is to check the understanding of the theory. |

### Reference nosilca/Lecturer's references:

1. BOUDI, Nadia, BRAČIČ, Janko. On the invertibility of length two elementary operators. The electronic journal of linear algebra, ISSN 1081-3810, 2015, vol. 30, str. 916-933.  
<http://repository.uwyo.edu/cgi/viewcontent.cgi?article=3124&context=ela>. [COBISS.SI-ID 17628761], [JCR, SNIP, WoS do 11. 3. 2016: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0];
2. BRAČIČ, Janko, DIOGO, Cristina. Relative numerical ranges. Linear Algebra and its Applications, ISSN 0024-3795. [Print ed.], 2015, vol. 485, str. 208-221. <http://dx.doi.org/10.1016/j.laa.2015.07.037>. [COBISS.SI-ID 17462105], [JCR, SNIP, WoS do 26. 10. 2015: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0, Scopus do 21. 10. 2015: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0];
3. BRAČIČ, Janko, DIOGO, Cristina. Hildebrandt's theorem for the essential spectrum. Rocznik Akademii Górniczo-Hutniczej im. Stanisława Staszica, Opuscula Mathematica, ISSN 1232-9274, 2015, vol. 35, no. 3, str. 279-285. <http://dx.doi.org/10.7494/OpMath.2015.35.3.279>. [COBISS.SI-ID 17261401], [SNIP, WoS do 9. 11. 2015: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0, Scopus do 27. 3. 2015: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0];
4. BRAČIČ, Janko, RUDOLF, Tina. Estimates of k-hyperreflexivity constants. Linear Algebra and its Applications, ISSN 0024-3795. [Print ed.], 2014, vol. 458, str. 47-59.  
<http://dx.doi.org/10.1016/j.laa.2014.05.035>. [COBISS.SI-ID 17089113], [JCR, SNIP, WoS do 15. 9. 2014: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0, Scopus do 19. 8. 2014: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0];
5. AMBROZIE, Calin, BRAČIČ, Janko, KUZMA, Bojan, MÜLLER, Vladimir. The commuting graph of bounded linear operators on a Hilbert space. Journal of functional analysis, ISSN 0022-1236, 2013, vol. 264, iss. 4, str. 1068-1087. <http://dx.doi.org/10.1016/j.jfa.2012.11.011>. [COBISS.SI-ID 16556377], [JCR, SNIP, WoS do 22. 2. 2013: št. citatov (TC): 0, čistih citatov (CI): 0, normirano št. čistih citatov (NC): 0, Scopus do 4. 4. 2016: št. citatov (TC): 1, čistih citatov (CI): 1, normirano št. čistih citatov (NC): 1].

# NAČRTOVANJE APRETURNIH POSTOPKOV

|                                   |                                  |
|-----------------------------------|----------------------------------|
| <b>Predmet:</b>                   | Načrtovanje apreturnih postopkov |
| <b>Course title:</b>              | Planning finishing processes     |
| <b>Članica nosilka/UL Member:</b> | UL NTF                           |

|                                                       |                       |               |                 |                  |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

Univerzitetna koda predmeta/University course code: 0068749

Koda učne enote na članici/UL Member course code: 10025

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 30                  | 15                 | 0                                       | 0                                                   | 90                                                | 6    |

Nosilec predmeta/Lecturer: Barbara Simončič

Izvajalci predavanj:

Izvajalci seminarjev:

Izvajalci vaj:

Izvajalci kliničnih vaj:

Izvajalci drugih oblik:

Izvajalci praktičnega  
usposabljanja:

Vrsta predmeta/Course type: Obvezni/Compulsory

Jeziki/Languages:

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

- Pogoj za vključitev v delo je vpis v letnik študija.
- Pogoj za pristop k kolokviju iz vaj so opravljene vse laboratorijske vaje po programu.
- Pogoj za pristop k pisnemu izpitu je pozitivno opravljen kolokvij iz laboratorijskih vaj ter opravljeno in ustno zagovarjano seminarsko delo.

**Prerequisites:**

- The enrolment in the study year is required for the inclusion in the course work.
- Finished laboratory work according to the program is required for the application to the colloquium from of the laboratory work.
- A positive examination of the colloquium form the laboratory work and a positive oral presentation of the seminar work are required for the application to the written exam.

**Vsebina:**

**Postopki kemijske apreture:**

- Vrhunska, vodo in oljeodbojna, soil-release, porometriks izdelki, trdilna, mehčalna, antistatična, protimikrobna, ognjevarna, super-wash.

**Content (Syllabus outline):**

**Chemical finishing processes:**

- Easy-care, water and oil repellent, soil-release, porometric materials, hardening, softening, antistatic, antimicrobial, UV protective, flame retardant, super-wash.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Pri posameznem postopku apreture se obravnava namen apreture, učinki na blagu, predstavijo se strukture apreturinih sredstev, aditivov, katalizatorjev, mehanizmi vezanja sredstev na vlakna, vpliv strukture apreturnega sredstva na lastnosti oplemenitenih vlaken, postopki aplikacije in njihove faze, pogoji potrebni za nanos.</li> <li>• Predstavijo se načini in postopki vrednotenja kakovosti apreture v skladu z veljavnimi oziroma predpisanimi standardi.</li> <li>• Obravnava se ekološka sprejemljivost postopkov apreture in kemijskih apreturinih sredstev.</li> </ul> <p><b>Postopki mehanske apreture:</b></p> <ul style="list-style-type: none"> <li>• Kompresijsko krčenje, sanfor plus postopek, postopki za urejanje leska (kalandriranje, stiskanje, finish dekatatura), fiksiranje volne (krabiranje, mokro dekatiranje), polstenje in valjanje, urejanje površine (kosmatenje, brušenje, dviganje velurja).</li> <li>• Pri posameznem postopku se obravnava namen in učinek apreture, princip obdelave, strojna oprema, dejavniki, ki vplivajo na učinek apreture.</li> </ul> <p><b>Laboratorijske vaje:</b></p> <ul style="list-style-type: none"> <li>• Laboratorijska izvedba različnih postopkov apretiranja tekstilnih substratov.</li> </ul> <p><b>Seminarsko delo:</b></p> <ul style="list-style-type: none"> <li>• Načrtovanje postopka apreture tekstilije glede na zahtevane uporabne lastnosti.</li> </ul> | <ul style="list-style-type: none"> <li>• In the individual finishing process, the aim of the process and its effects on the textile fibres are discussed; the structures of the finishing agents, additives and catalysts as well as the bonding mechanisms of the finishing agents to the fibres are presented; the influence of the finishing agents structures on the fibres properties is discussed; the application procedures and their phases as well as the required application conditions are investigated.</li> <li>• The quality assessment methods and procedures of the finishing are presented in accordance with the applicable and prescribed standards.</li> <li>• The ecological acceptability of the finishing processes and the chemical finishing agents are discussed.</li> </ul> <p><b>Mechanical finishing processes:</b></p> <ul style="list-style-type: none"> <li>• Compression shrinkage, sanfor plus, glaze editing (calendaring, pressing, finish decatizing), wool fixation (crabbing, wet decatizing), wool felting and fulling, surface editing (rising, sueding, velour lifting).</li> <li>• For each process, the aim of the process and its effects on the textile fibres are discussed; the principle of the process; machines required as well as the effects influencing the finishing properties are presented.</li> </ul> <p><b>Laboratory work:</b></p> <ul style="list-style-type: none"> <li>• Laboratory performance of various finishing processes of textile substrates.</li> </ul> <p><b>Seminar work:</b></p> <ul style="list-style-type: none"> <li>• Planning of the textile finishing process regarding the required functional properties.</li> </ul> |
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### Temeljna literatura in viri/Readings:

- BERAUS, F. Tekstilni procesi : tiskanje in apretiranje tekstilij. Ljubljana : NTF, Oddelek za tekstilstvo, 2001; Handbook of Fiber Science and Technology. Vol. 1, Chemical Processing of Fibers and Fabrics. Ed. by M. Lewin in B. Sello. New York : Marcel Dekker, 1984;
  - KARMAKAR, S. R. Chemical Technology in the Pretreatment Processes of Textiles. Amsterdam : Elsevier, 1999; Colorants and Auxiliaries. Vol. 2, Auxiliaries. Ed. by J. Shore. Manchester : SDC, 1990;
  - Textile Finishing. Ed. by D. Heywood. Bradford : SDC, 2003; KATOVIĆ, D., et al. Osnove oplemenjivanja tekstila. Knj. 3, Procesi suhog oplemenjivanja tekstila. Zagreb : Tekstilno-tehnološki fakultet, 2003;
  - CARTY, P., in BYRNE, M. S. The Chemical and Mechanical Finishing of Textile Materials. 2nd ed. Newcastle : UNN Commercial Enterprises, 1987;
  - Izbrani članki iz domačih in tujih strokovnih revij, dostopnih v knjižnici Oddelka za tekstilstvo, NTF, in v elektronskih revijah ter spletne strani / Selected articles from national and foreign professional magazines, available in the Library of the Department of Textiles, NTF, and in electronic journals and websites.
- Literatura je dosegljiva v knjižnici Oddelka za tekstilstvo, NTF / References can be found at the Library of the Department of Textiles, NTF.

### Cilji in kompetence:

Pri predmetu Apertura diplomant osvoji znanja s področja končne kemijske in mehanske apreture, ki so ključnega pomena za razvoj in oblikovanje funkcionalnih tekstilnih izdelkov z visoko dodano vrednostjo.

### Objectives and competences:

In the course of Finishing, a graduate acquires the knowledge in the field of chemical and mechanical finishing of textiles which is crucial for the planning and design of functional textile products with high added value.

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| <p><b>Predmetno specifične kompetence:</b></p> <ul style="list-style-type: none"> <li>• Poznavanje in izvajanje konvencionalnih, sodobnih in specialnih postopkov kemične in mehanske dodelave tekstilij;</li> <li>• Sposobnost uporabe teoretičnih znanj s področja plemenitenja pri razumevanju vpliva strukture apreturnega sredstva na lastnosti modificiranih vlaken;</li> <li>• Sposobnost povezovanja znanj s področij konstrukcijskih, mehanskih, fizikalnih in kemijskih lastnosti tekstilij ter postopki apretiranja, kar je pogoj za kakovostno izvedbo modifikacije površin vlaken;</li> <li>• Sposobnost strokovne izbire sredstev in načinov apretiranja glede na želene uporabne lastnosti tekstilij;</li> <li>• Poznavanje in obvladovanje postopkov vrednotenja kakovosti apreture v skladu z veljavnimi oziroma predpisanimi standardi;</li> <li>• Sposobnost uporabe pridobljenega znanja za kritično presojo do tehnoloških potez pri preoblikovanju obstoječih kot tudi pri načrtovanju novih apretur postopkov;</li> <li>• Sposobnost hitrega odziva na nove informacije ter njihova uporaba pri razvoju tekstilnih izdelkov;</li> <li>• Sposobnost za ustvarjalno razmišljanje in konstruktivno povezovanje pri timskem delu z namenom uskladitve oblikovalskih, estetskih, stilskih, tržnih in tehnološko izvedbenih zahtev pri načrtovanju in konstrukciji oplemenitenega tekstilnega izdelka;</li> <li>• Sposobnost samostojnega znanstvenega raziskovalnega dela ter njegove smiselne in razumljive predstavitve;</li> <li>• Sposobnost strokovnega svetovanja pri uporabi in trženju apretur sredstev;</li> <li>• Sposobnost ekološkega razmišljanja pri vodenju in načrtovanju postopkov apretiranja kot tudi pri trženju apretur sredstev.</li> </ul> | <p><b>Subject-specific competences:</b></p> <ul style="list-style-type: none"> <li>• Knowledge and implementation of conventional, contemporary and special processes of chemical and mechanical finishing of textiles;</li> <li>• Ability to apply the theoretical knowledge in the field of finishing for the understanding the influence of the finishing agent structures on the properties of modified fibres;</li> <li>• Ability to integrate the knowledge in the fields of structural, mechanical, physical and chemical properties of textiles as well as the finishing processes which is a prerequisite for the high-quality implementation of the fibre surfaces modification;</li> <li>• Ability of the professional choose of the finishing agents and processes regarding the required functional properties of textiles;</li> <li>• Knowledge and management of the quality assessment procedures of the finishing according to the prescribed standards;</li> <li>• Ability to use of the acquired knowledge for critical assessment regarding the technological approaches in transformation of the existing as well as planning of new finishing processes;</li> <li>• Ability to respond rapidly to new information and their use in the development of textile products;</li> <li>• Ability for creative thinking and constructive integration in the team work with the aim to align design, aesthetic, stylistic, marketing and technological requirements in the planning and constructing the finished textile product;</li> <li>• Ability of independent scientific research work and its reasonable and comprehensible presentation;</li> <li>• Expertise in the field of the use and marketing of finishing agents;</li> <li>• Ecological thinking in management and planning of the finishing processes as well as in the marketing of finishing agents.</li> </ul> |
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| <p><b>Predvideni študijski rezultati:</b></p> <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>• Študent pozna klasične, sodobne in specialne apretur postopke. Zna jih načrtovati, razložiti posamezne faze postopka in jih samostojno izvesti.</li> <li>• Zna uporabiti najustreznejši postopek dela glede na zahtevane uporabne lastnosti tekstilij.</li> <li>• Razume vpliv nanosa kemijske apreture na spremembo uporabnih lastnosti tekstilij.</li> <li>• Pozna, kakšne obdelave zahtevajo tekstilni substrati glede na svojo strukturo in predelovalno stopnjo, pozna strojne naprave, sredstva in kemikalije ter optimalne pogoje obdelav. Pozna negativne vplive na okolje in človeka in jih zna minimizirati.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>Knowledge and understanding:</b></p> <ul style="list-style-type: none"> <li>• A student is familiar with classical, contemporary and special finishing processes. He is able to plan, explain and independently carry out the individual stages of the finishing process.</li> <li>• He is able to use the most appropriate finishing procedure according to the required functional properties of textiles.</li> <li>• He understands the influence of the application of the chemical finishing process on the surface modification and functional properties of textiles.</li> <li>• He is able to choose the required textile treatments regarding the structural properties and processing stages of textiles, he is familiar with the machine devices, finishing agents and chemicals as well as optimal processing</li> </ul> |
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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Pozna osnovne kemijske reakcije pri posameznih postopkih. Zna oceniti in interpretirati rezultate obdelav.</li> </ul> <p><b>Uporaba:</b></p> <ul style="list-style-type: none"> <li>Zna uporabiti ustrezni klasični ali sodobni postopek apreture, ga samostojno izvesti in ovrednotiti kakovost izvedbe postopka.</li> <li>Se zna hitro odzvati na nove informacije ter jih uporabiti pri postopkih plemenitenja;</li> <li>Zna strokovno ravnati s tekstilnimi pomožnimi sredstvi ter kemikalijami.</li> </ul> | <p>conditions. He knows their negative effects on the environment and human being and can minimize them.</p> <ul style="list-style-type: none"> <li>He is familiar with the basic chemical reactions in the individual finishing processes. He is able to evaluate and interpret the results of the finishing processes.</li> </ul> <p><b>Application:</b></p> <ul style="list-style-type: none"> <li>He is able to choose an appropriate classical or contemporary finishing procedure, to perform it independently and evaluate the quality of the applied procedure.</li> <li>He can quickly respond to new information and apply them in the finishing processes.</li> <li>He is capable of the professional handling with the auxiliaries and chemicals.</li> </ul> |
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|                                                               |                                                           |
|---------------------------------------------------------------|-----------------------------------------------------------|
| <b>Metode poučevanja in učenja:</b>                           | <b>Learning and teaching methods:</b>                     |
| Predavanja, seminarsko delo, laboratorijske vaje, ekskurzije. | Lectures, seminar work, laboratory exercises, excursions. |

|                            |                     |                                   |
|----------------------------|---------------------|-----------------------------------|
| <b>Načini ocenjevanja:</b> | <b>Delež/Weight</b> | <b>Assessment:</b>                |
| Pisni izpit                | 60,00 %             | Written exam                      |
| Kolokvij iz vaj            | 20,00 %             | Colloquium of laboratory practice |
| Seminarsko delo            | 20,00 %             | Seminar work                      |

**Reference nosilca/Lecturer's references:**

- ŠEHIĆ, Alisa, VASILJEVIĆ, Jelena, JORDANOV, Igor, DEMŠAR, Andrej, MEDVED, Jože, JERMAN, Ivan, ČOLOVIĆ, Marija, HEWITT, Fiona, HULL, T. Richard, SIMONČIĆ, Barbara. Influence of N-, P- and Si-based flame retardant mixtures on flammability, thermal behavior and mechanical properties of PA6 composite fibers. *Fibers and polymers*, ISSN 1229-9197, 2018, vol. 18, no. 6, str. 1194-1206. <https://link.springer.com/article/10.1007/s12221-018-8059-5>. [COBISS.SI-ID 3497328].
- ŠTULAR, Danaja, PRIMC, Gregor, MOZETIČ, Miran, JERMAN, Ivan, MIHELČIČ, Mohor, RUIZ-ZEPEDA, Francisco, TOMŠIČ, Brigita, SIMONČIĆ, Barbara, GORJANC, Marija. Influence of non-thermal plasma treatment on the adsorption of a stimuli-responsive nanogel onto polyethylene terephthalate fabric. *Progress in organic coatings*, ISSN 0300-9440. [Print ed.], July 2018, vol. 120, str. 198-207, ilustr. <https://www.sciencedirect.com/science/article/pii/S0300944017309487>, doi: 10.1016/j.porgcoat.2018.03.023. [COBISS.SI-ID 31324455].
- VASILJEVIĆ, Jelena, ZORKO, Milena, ŠTULAR, Danaja, TOMŠIČ, Brigita, JERMAN, Ivan, OREL, Boris, MEDVED, Jože, KOVAČ, Janez, SIMONČIĆ, Barbara. Structural optimisation of a multifunctional water- and oil-repellent, antibacterial, and flame-retardant sol-gel coating on cellulose fibres. *Cellulose*, ISSN 0969-0239, Mar. 2017, vol. 24, no. 3, str. 1511-1528, ilustr. <https://link.springer.com/article/10.1007/s10570-016-1187-4>, doi: 10.1007/s10570-016-1187-4. [COBISS.SI-ID 3354736].
- VASILJEVIĆ, Jelena, ZORKO, Milena, TOMŠIČ, Brigita, JERMAN, Ivan, SIMONČIĆ, Barbara. Fabrication of the hierarchically roughened bumpy-surface topography for the long-lasting highly oleophobic "lotus effect" on cotton fibres. *Cellulose*, ISSN 0969-0239, October 2016, vol. 23, no. 5, str. 3301-3318. <http://link.springer.com/article/10.1007/s10570-016-1007-x>, doi: 10.1007/s10570-016-1007-x. [COBISS.SI-ID 3255152].
- TOMŠIČ, Brigita, JOVANOVSKE, Vasko, OREL, Boris, MIHELČIČ, Mohor, KOVAČ, Janez, FRANCETIČ, Vojmir, SIMONČIĆ, Barbara. Bacteriostatic photocatalytic properties of cotton modified with TiO<sub>2</sub> and TiO<sub>2</sub>/aminopropyltriethoxysilane. *Cellulose*, ISSN 0969-0239, 2015, vol. 22, no. 5, str. 3441-3463. <http://link.springer.com/article/10.1007/s10570-015-0696-x>, doi: 10.1007/s10570-015-0696-x. [COBISS.SI-ID 3153520].



# NAČRTOVANJE BARVALNIH POSTOPKOV

|                                   |                                 |
|-----------------------------------|---------------------------------|
| <b>Predmet:</b>                   | Načrtovanje barvalnih postopkov |
| <b>Course title:</b>              | Planning dyeing processes       |
| <b>Članica nosilka/UL Member:</b> | UL NTF                          |

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

Univerzitetna koda predmeta/University course code: 0068750

Koda učne enote na članici/UL Member course code: 10026

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 45                 | 0                                       | 0                                                   | 90                                                | 6    |

Nosilec predmeta/Lecturer: Mateja Kert

Izvajalci predavanj:

Izvajalci seminarjev:

Izvajalci vaj:

Izvajalci kliničnih vaj:

Izvajalci drugih oblik:

Izvajalci praktičnega  
usposabljanja:

Vrsta predmeta/Course type: Obvezni/Compulsory

Jeziki/Languages:

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
Pogoj za pristop h kolokviju iz vaj so opravljene laboratorijske vaje.  
Pogoja za pristop k pisnemu izpitu sta pozitivno opravljen kolokvij iz laboratorijskih vaj in pozitivno ocenjena javna predstavitev seminarskega dela.

**Prerequisites:**

Enrolment into the study year.  
The prerequisite for approach to laboratory practice colloquium is successfully performed laboratory practices.  
Positively passed of both laboratory practice colloquium and public presentation of a coursework are conditions for approach to written exam.

**Vsebina:**

**Predavanja:**

- Zgradba barvil;
- Vloga tekstilnih pomožnih sredstev pri procesu barvanja in poobdelav;
- Priprava tehnološke vode za barvanje;
- Tehnološki postopki barvanja in strojna oprema;

**Content (Syllabus outline):**

**Lectures:**

- Structure of dyes;
- The role of auxiliaries in the dyeing process and after-treatments;
- Preparation of process water for dyeing;
- Technological processes of dyeing and dyeing machines;

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <ul style="list-style-type: none"> <li>• Postopki barvanja naravnih, kemičnih in sintetičnih vlaken (direktna, žveplova, redukcijska, reaktivna, pigmenti, kislila, kovinsko kompleksna, bazična, disperzna, foto- in termokromna barvila);</li> <li>• Barvanje mešanic;</li> <li>• SIST EN ISO standardi za preizkušanje barvnih obstojnosti pobarvanih tkanini.</li> </ul> <p><b>Laboratorijske vaje:</b></p> <ul style="list-style-type: none"> <li>• Barvanje celuloze z direktnimi, žveplovimi, redukcijskimi in reaktivnimi barvili;</li> <li>• Barvanje volne s kislimi in reaktivnimi barvili;</li> <li>• Barvanje poliamida s kislimi in 1:2 kovinskokompleksnimi barvili;</li> <li>• Barvanje poliakrilonitrila z bazičnimi barvili;</li> <li>• Barvanje poliestra z disperzijskimi barvili;</li> <li>• Barvanje mešanice poliestra/bombaža, barvanje mešanice poliestra/volne;</li> <li>• Preskušanje obstojnosti obarvanj, identifikacija barvil na pobarvanem blagu.</li> </ul> <p><b>Seminar:</b></p> <ul style="list-style-type: none"> <li>• Izvedbeni načrt postopka barvanja za specifično tekstilijo in javna predstavitev seminarja.</li> </ul> | <ul style="list-style-type: none"> <li>• Dyeing of natural, chemical and synthetic fibres (direct dyes, sulphur dyes, vat dyes, reactive dyes, pigments, acid dyes, metal- complex dyes, basic dyes, disperse dyes, photo and thermochromic dyes);</li> <li>• Dyeing of blends;</li> <li>• Evaluation of colour fastness properties of dyed textiles based on SIST EN ISO standards.</li> </ul> <p><b>Laboratory practices:</b></p> <ul style="list-style-type: none"> <li>• Dyeing of cellulose with direct, sulphur, vat and reactive dyes;</li> <li>• Dyeing of wool with acid and reactive dyes;</li> <li>• Dyeing of nylon with acid and 1:2 metal-complex dyes;</li> <li>• Dyeing of acryl with basic dyes;</li> <li>• Dyeing of polyester with disperse dyes;</li> <li>• Dyeing of blends polyester/cotton and polyester/wool;</li> <li>• Testing of colour fastness properties of dyed fabric; identification of dyes on dyed goods.</li> </ul> <p><b>Coursework:</b></p> <ul style="list-style-type: none"> <li>• Implementation plan of the dyeing process for specific textile. Public presentation of the coursework.</li> </ul> |
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### Temeljna literatura in viri/Readings:

Knjige/books: Cellulosics Dyeing, Edited by J. SHORE. Bradford : Society of Dyers and Colourists, 1995; Wool Dyeing, Edited by D.M: LEWIS. Bradford : Society of Dyers and Colourists, 1992.; BURKINSHAW, S.M., Chemical principles of synthetic fibre dyeing, Glasgow : Blackie Academic & Professional, an imprint of Chapman & Hall, 1995; Blends Dyeing, Edited by J. SHORE. Bradford : Society of Dyers and Colourists, 1998; BAMFIELD, P., Chromic Phenomena Technological applications of colour chemistry, Cambridge : The Royal Society of Chemistry, 2001; Industrial Dyes, Chemistry, Properties, Applications. Edited by K. HUNGER. Weinheim : Wiley-VCH Verlag GmbH & Co. KGaA, 2003 Izbrani strokovni in znanstveni članki iz periodičnih publikacij, ki so na voljo v knjižnici Oddelka za tekstilstvo ter v elektronskih revijah. / Selected professional and original scientific articles from periodicals, available in the library of the Department of Textiles and in electronic journals.

### Cilji in kompetence:

#### Cilji:

- Študent se seznani z zgradbo barvil, vlogo tekstilnih pomožnih sredstev ter uporabo barvarskih procesov za barvanje naravnih, kemičnih in sintetičnih materialov.
- Seznani se s standardi preizkušanj obstojnosti obarvanj.

#### Kompetence:

- Sposobnost načrtovanja in izvedbe postopka barvanja glede na vrsto tekstilnega materiala in kakovostnih zahtev pobarvane tekstilije z vidika barvnih obstojnosti;
- Sposobnost izbora ustreznega barvila, razumevanje tehnične dokumentacije in vloge sestavin barvalne kopeli ter prenos receptur v prakso;

### Objectives and competences:

#### Objectives:

- Dye constitution, the role of auxiliaries and the process of dyeing natural, chemicals and synthetic materials are introduced to the student.
- Standards for evaluation of colour fastness properties of dyed fabric are also introduced to the student.

#### Competences:

- The ability to plan and perform dyeing process according to the fabric type and quality requirements of dyed textiles in terms of colour fastness properties;
- The ability to select an appropriate dye, understanding the technical documentation and the role of dyebath components; Transfer of dyeing recipes into the practice;

|                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <ul style="list-style-type: none"> <li>• Sposobnost prilagajanja zahtevam tržišča, hiter odziv na spremembe in vpeljava novih postopkov barvanja v prakso;</li> <li>• Sposobnost in razumevanje uporabe ustreznih standardiziranih metod za preizkušanje obstojnosti obarvanj;</li> <li>• Sposobnost identifikacije barvil na pobarvanem blagu z uporabo različnih laboratorijskih testnih metod.</li> </ul> | <ul style="list-style-type: none"> <li>• The ability to adapt to market demand, rapid response to changes and the introduction of new dyeing processes into the practice;</li> <li>• The ability to understand and use appropriate standardized methods for testing colour fastness properties of dyed fabric;</li> <li>• The ability to identify dyes on dyed goods using different laboratory testing methods.</li> </ul> |
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#### **Predvideni študijski rezultati:**

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| <ul style="list-style-type: none"> <li>• Študent razume kemijske in fizikalne značilnosti barvil, pozna postopke barvanja in jih zna načrtovati, zna poiskati in izbrati ustrezno barvilo med proizvajalci barvil glede na uporabne lastnosti tekstilije, razume vlogo tekstilnih pomožnih sredstev v barvalni kopeli;</li> <li>• Zna načrtovati in ustrezno izbrati postopke poobdelave za izboljšanje obstojnosti obarvanj, zna izvesti standarde metode testiranja za preizkušanje obstojnosti obarvanj, na pobarvanem materialu, zna prepoznati barvilo z uporabo testnih metod in je sposoben napisati strokovno mnenje o izvedeni analizi in dobljenih rezultatih testiranja.</li> </ul> |
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#### **Intended learning outcomes:**

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| <ul style="list-style-type: none"> <li>• The student understands physical and chemical characteristics of dyes; He knows dyeing processes and knows how to plan them; He is able to find and select an appropriate dye among dyestuffs manufacturers according to application properties of textiles; He understands the role of auxiliaries in the dyebath;</li> <li>• He is able to plan and select appropriate after-treatments to improve colour fastness properties; He is able to perform standard testing methods for evaluation of colour fastness properties; He is able to recognize the dye, present on dyed textile, using different testing methods; From the obtained results of the analyse he is able to write a proper professional opinion.</li> </ul> |
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#### **Metode poučevanja in učenja:**

Predavanja, seminarsko delo in laboratorijske vaje.

#### **Learning and teaching methods:**

Lectures, coursework and laboratory practices.

#### **Načini ocenjevanja:**

#### **Delež/Weight**

#### **Assessment:**

|                                 |         |                                   |
|---------------------------------|---------|-----------------------------------|
| Pisni izpit                     | 60,00 % | Written exam                      |
| Kolokvij iz laboratorijskih vaj | 20,00 % | Colloquium of laboratory practice |
| Seminarsko delo                 | 20,00 % | Seminar work                      |

#### **Reference nosilca/Lecturer's references:**

1. KERT, Mateja, SIMONČIČ, Barbara. The influence of nonionic surfactant structure on the thermodynamics of anionic dye-cationic surfactant interactions in ternary mixtures. Dyes and pigments, ISSN 0143-7208. [Print ed.], 2008, vol. 79, no. 1, str. 59-68. <http://dx.doi.org/10.1016/j.dyepig.2008.01.005>. [COBISS.SI-ID 1978736];
2. SIMONČIČ, Barbara, KERT, Mateja. Influence of the chemical structure of dyes and surfactants on their interactions in binary and ternary mixture. Dyes and pigments, ISSN 0143-7208. [Print ed.], 2008, vol. 76, no. 1, str. 104-112. [COBISS.SI-ID 1804400];
3. SIMONČIČ, Barbara, KERT, Mateja. Thermodynamics of anionic dye-cationic surfactant interactions in cationic-nonionic surfactant mixtures in comparison with binary systems. Dyes and pigments, ISSN 0143-7208. [Print ed.], 2006, vol. 71, no. 1, str. 43-53. [COBISS.SI-ID 1514608];
4. KERT, Mateja, SIMONČIČ, Barbara. Pomen interakcij barvilo-tenzid v barvarstvu = Importance of dye-surfactant interactions in dyeing. Tekstilec, ISSN 0351-3386, 2007, letn. 50, št. 7/9, str. 187-207. [COBISS.SI-ID 1974896].

# NAČRTOVANJE KONFEKCIJE

**Predmet:** Načrtovanje konfekcije  
**Course title:** Planning apparel  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068751

**Koda učne enote na članici/UL Member course code:** 11292

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 30                 | 0                                       | 0                                                   | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Matejka Bizjak

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
 Za pristop h končnemu izpitu je pogoj opravljen seminar.

**Prerequisites:**

Enrolment into study year.  
 Before the final exam students must present a seminar work.

**Vsebina:**

- Osnove sodobne priprave konfekcijske proizvodnje: tehnična priprava proizvodnje podprta z uporabo CAD sistema;
- Tehnološki proces krojenja: sodobni način krojenja, krojne slike, uporaba CAM sistemov za računalniško vodeno krojenje;
- Tehnološki proces stabiliziranja;
- Tehnološki proces šivanja: tehnološke zahteve vbodov in šivov, sukanci, sodobna strojna oprema;
- Tehnološki proces likanja;

**Content (Syllabus outline):**

- Introduction to the modern preparation of clothing manufacture: technical preparation of production supported by the use of CAD system;
- The technological process of cutting: contemporary cutting, marker planning, use of CAM systems for computer-aided cutting;
- Fusing technology;
- Sewing technology: technological requirements of stitches and seams, threads, and modern sewing machines;
- Pressing technology;

|                                                                                              |                                                                                                        |
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| <ul style="list-style-type: none"> <li>Kakovostne zahteve materialov in procesov.</li> </ul> | <ul style="list-style-type: none"> <li>The quality requirements of materials and processes.</li> </ul> |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|

### Temeljna literatura in viri/Readings:

- KNEZ, B. Tehnološki procesi proizvodnje odječe, Zagreb 1990; CARR & LATHAM's: Technology of clothing manufacture, Blackwell Publishing, UK, 2000;
- COOKLIN, G. Introduction to clothing manufacture, Blackwell Publishing, UK, 2002;
- BRACKENBURY, T. Knitted Clothing Technology, Blackwell Publishing, UK, 1992;
- LATTING R.M., WEBSTER, J. Stitches and Seams, The textile Institute, 1998;
- ŠAJN GORJANC, D. Tehnologija konfekcije: skripta za vaje, 2009; Prosojnice predavanj / lecture slides.

### Cilji in kompetence:

#### Cilji:

- Spoznavanje zahtev tehnične priprave proizvodnje, specifičnosti posameznih tehnoloških procesov, zahtev kakovostnih in predelovalnih lastnosti osnovnih in pomožnih tekstilnih materialov ter njihov vpliv na kakovost.

#### Kompetence:

- Razumevanje koncepta sodobne priprave proizvodnje v oblačilni industriji za doseganje konkurenčnosti;
- Sposobnost povezovanja znanja z različnih področij (konstrukcija, modeliranje, estetika, CAD/CAM sistemi, materiali) in aplikacij na podlagi opredelitve namembnosti izdelka;
- Sposobnost optimiranja tehnoloških postopkov izdelave oblačil in drugih izdelkov, izbor delovnih sredstev ter spremljanje proizvodnje;
- Sposobnost uvajanja novih tehnologij in znanj v prakso ter samostojnega vodenja ter odločanja;
- Poznavanje integriranih proizvodnih procesov v konfekcijski industriji in trendov globalizacije.

### Objectives and competences:

#### Objectives:

- Understanding the requirements of the technical production preparation, the specificity of the technological processes, the requirements of quality and processing characteristics of primary and auxiliary textile materials and their impact on quality.

#### Competences:

- Understanding the concept of modern production preparation in the clothing industry with respect to achieving competitiveness;
- The ability to integrate knowledge from different fields (design, modelling, aesthetics, CAD/CAM systems, materials) and applications based on the definition of the product's end use;
- The ability to optimise the technological processes of manufacture garments and other products, the selection of working tools and production monitoring;
- The ability to introduce new technologies and skills into practice and self-management;
- A knowledge of integrated production processes in the clothing industry and trends of globalisation.

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Standardov in sistemov označevanja velikosti oblačil;
- Sodobne priprave proizvodnje;
- Tehnološkega procesa krojenja, računalniško priprave za krojenje, tehnološke opreme za krojenje;
- Pomena fiksiranja, tehnološkega postopka, pogojev fiksiranja, pravilnega izbora medvloge;
- Vbodov, šivov, tehnološkega procesa in tehnološke opreme za šivanje, pomena pravilne izbire šivalnih parametrov, igel in sukanca;
- Tehnološkega procesa likanja;
- Kakovostnih zahtev materialov in procesov;
- Trendov avtomatizacije v konfekcijski industriji.

### Intended learning outcomes:

#### Knowledge and understanding:

- Standards and size chart formulation;
- Modern production preparation;
- Cutting technology, computer aided preparation for cutting, cutting machinery;
- The importance of fusing, technological process and fusing conditions, the selection of interlinings;
- Stitches, seams, the technological process, sewing machinery, the importance of sewing parameters, needle and threads;
- Pressing technology;
- The quality requirements of materials and processes;
- The trends of automation in clothing manufacturing.

**Metode poučevanja in učenja:**

Predavanja, seminar, laboratorijske vaje na CAD sistemu Lectra.

**Learning and teaching methods:**

Lectures, seminars, laboratory work with Lectra CAD system.

**Načini ocenjevanja:****Delež/Weight****Assessment:**

|                   |         |                          |
|-------------------|---------|--------------------------|
| Pisni izpit       | 40,00 % | Written exam             |
| Seminarska naloga | 30,00 % | Seminar work             |
| Kolokvij iz vaj   | 30,00 % | Colloquium from tutorial |

**Reference nosilca/Lecturer's references:**

1. BIZJAK, M., DIMITROVSKI, K. The role of technological parameters at woven fabrics construction. Int. j. polym. mater.. [Tiskana izd.], 2000, vol. 47, no. 4, str. 603-612;
2. BIZJAK, M. Beton ojačan tekstilom = Textile reinforced concrete = Textilverstärkter Beton. Tekstil, 2002, vol. 51, no. 1, str. 22-30;
3. STANKOVIĆ, S., POPOVIĆ, D., POPARIĆ, G., BIZJAK, M. Ultraviolet protection factor of gray-state plain cotton knitted fabrics. Textile Research Journal, 2009, vol. 79, no. 11, str. 1034-1042;
4. ŠAJN GORJANC, D., DIMITROVSKI, K., BIZJAK, M. Thermal and water vapour resistance of the elastic and conventional cotton fabrics. Textile Research Journal;
5. GORENŠEK, M., SEVER, M., DEBELAK, F., RIJAVEC, T., BIZJAK M., BRAČKO S. Pametne tekstilije za zavese: Impregnirno barvanje poliestrne preje s fosforescenčnimi pigmenti. Tekstilec, 2006, let. 49, št.10-12, str. 201 – 204;
6. RIJAVEC, T., BIZJAK, M. Influence of constructional parameters on end-use properties of fine cotton shirting made of compact yarn. Vlákna text. (Svit), 2010, roč. 17, 2, str. 21-26.

# NAČRTOVANJE PLETIV IN PLETENIN

|                                   |                                       |
|-----------------------------------|---------------------------------------|
| <b>Predmet:</b>                   | Načrtovanje pletiv in pletenin        |
| <b>Course title:</b>              | Planning knitted fabrics and knitwear |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                |

|                                                       |                       |               |                 |                  |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

|                                                            |         |
|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0068737 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 10029   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 30                 | 0                                       | 0                                                   | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Alenka Pavko Čuden

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

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| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
Pogoj za pristop h končnemu izpitu: opravljene laboratorijske in računske vaje, opravljen seminar, opravljena predstavitev projektnega dela, pozitivno opravljen kolokvij iz računskih vaj.

**Prerequisites:**

Enrollment in the study year.  
Requirement to enter the final exam: completed laboratory and computational exercises, completed seminar, completed presentation of the project work, passed exam in computational exercises.

**Vsebina:**

**Predavanja:**

- Pomen in uporaba pletiv in pletenin v tekstilstvu in na ostalih področjih uporabe;
- Principi in načini pletenja; pletilske tehnike; vrste in oblike pletilnikov; možnosti vzorčenja;
- Vrste in lastnosti pletiv in pletenin glede na izdelavno tehnologijo (votkova pletiva, snutkovna pletiva, nogavičarski izdelki);

**Content (Syllabus outline):**

**Lectures:**

- Meaning and use of knitwear and knitted fabrics in textile and other applications;
- Principles and methods of knitting; knitting techniques; types and shapes of knitting machines; patterning possibilities;
- Types and characteristics of knitted fabrics/knitwear in relation to manufacturing technology (weft knitting, warp knitting, hosiery);

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| <ul style="list-style-type: none"> <li>• Vrste in lastnosti pletiv glede na uporabnost izdelkov (oblačilna pletiva/pletenine, modni dodatki, hišna pletiva/pletenine, specialna pletiva/pletenine, pleteni kompoziti);</li> <li>• Geometrija strukture pletiv in pletenin; modeli zank;</li> <li>• Konstrukcijski parametri pletiv in njihova povezanost z lastnostmi pletiv/pletenin;</li> <li>• Posebnosti preskušanja in zagotavljanja kakovosti pletiv in pletenin;</li> <li>• Načrtovanje uporabnih lastnosti pletiv in pletenin;</li> <li>• Temelji ekonomike pletilskih procesov in izdelkov;</li> <li>• Posebnosti nege pletiv in pletenin; CAM/CIM sistemi v pletilstvu.</li> </ul> <p><b>Seminar:</b></p> <ul style="list-style-type: none"> <li>• Izračun parametrov pletiva po različnih modelih zanke in primerjava rezultatov;</li> <li>• Predstavitev izračuna materialnega in izdelavnega normativa za določeno pletivo/pletenino;</li> <li>• Predstavitev vrednotenja vplivnosti parametrov preje, procesnih parametrov pletenja in parametrov okolja na parametre pletiva za resnično pletivo z metodami analize podatkov.</li> </ul> <p><b>Projektno delo:</b></p> <ul style="list-style-type: none"> <li>• Projekt proizvodnje določenega pletiva/pletenine na podlagi vzorca (delo po skupinah, poročilo o projektu, predstavitev projekta, panelna razprava).</li> </ul> <p><b>Vaje:</b></p> <ul style="list-style-type: none"> <li>• Eksperimentalno določanje temeljnih parametrov zanke in pletiva (debelina preje, višina zanke, širina zanke, dolžina zanke, debelina pletiva, ploščinska masa pletiva);</li> <li>• Računsko določanje in vrednotenje temeljnih parametrov pletiva (gostota pletiva; moduli zanke, koeficienti zanke, faktorji vpletanja niti, Mundenove konstante, Knaptonova konstanta, faktor kritja);</li> <li>• Projektiranje pletiv/pletenin;</li> <li>• Projektiranje procesov pletenja.</li> </ul> | <ul style="list-style-type: none"> <li>• Types and characteristics of knitted fabrics/knitwear according to the usability of products (knitted fabrics/knitwear, fashion accessories, interior knitted fabrics/knitwear, knitted fabrics/knitwear for special purposes, knitted composites);</li> <li>• Geometry of knitted structure; loop models;</li> <li>• Construction parameters of knitted fabrics and their connection with knitted fabrics/knitwear properties;</li> <li>• Specifics of testing and quality assurance of knitted fabrics/knitwear;</li> <li>• Designing performance properties of knitted fabrics/knitwear;</li> <li>• Basics of knitting processes and products economics;</li> <li>• Specifics of knitted fabrics/knitwear care; CAM/CIM knitting systems.</li> </ul> <p><b>Seminar:</b></p> <ul style="list-style-type: none"> <li>• Calculation of knitting parameters based on different loop models and comparison of results;</li> <li>• Calculation of the material and manufacturing time for a defined knitted fabrics/knitwear;</li> <li>• Evaluation of the yarn parameters', knitting process parameters' and environmental parameters' influence on the structural parameters for a real knitted fabric based on methods of data analysis.</li> </ul> <p><b>Project work:</b></p> <ul style="list-style-type: none"> <li>• Production of a defined knitted fabric/knitwear sample (groupwork, project report, project presentation, panel discussion).</li> </ul> <p><b>Exercises:</b></p> <ul style="list-style-type: none"> <li>• Experimental determination of the basic loop parameters parameters (yarn thickness, loop height, loop width, loop length, fabric thickness, mass per unit area);</li> <li>• Calculation and evaluation of basic knitting parameters (knitting density, loop modules, loop coefficients, yarn interlacing factors, Munden constants, Knapton constant, cover factor);</li> <li>• Knitted fabric/knitwear design;</li> <li>• Designing knitting processes.</li> </ul> |
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### Temeljna literatura in viri/Readings:

- HEARLE, J. W. S., GROSBURG, P., in BACKER, S. Structural Mechanics of Fibers, Yarns and Fabrics. New York : Wiley, 1969;
- KOBLJAKOV, A. Laboratory Practice in Study of Textile Materials. Moskva : Mir, 1989;
- SPENCER, D. J. Knitting Technology. Oxford : Pergamon Press, 1989;
- RAZ, S. Warp Knitting Production. Heidelberg : Melliand, 1987;
- RAZ, S. Flat Knitting Technology. Westhausen : Universal Maschinenfabrik, 1993;
- RAZ, S. Flat Knitting : the New Generation. Bamberg : Meisenbach, 1991;
- IYER, C., MAMMEL, B., in SCHÄCH, W. Circular Knitting. Bamberg : Meisenbach, 1995;
- Revije / journals: Knitting International, Kettenwirk-Praxis, Giornale della Maglieria e della Calzetteria.

### **Cilji in kompetence:**

Študenti spoznajo temeljne vrste pletiv in pletenin, proizvedenih po različnih pletilskih tehnologijah in tehnikah; hkrati spoznajo izdelavne posebnosti strojne opreme ter lastnosti teh pletiv in pletenin v odvisnosti od izdelavne tehnologije in vstopnih surovin.

#### **Predmetno-specifične kompetence:**

- Poznavanje in razumevanje razvoja pletilske stroke v odvisnosti od splošnega razvoja tekstilstva, tehnike in industrije; razumevanje celovitosti pletilske stroke ter povezanosti med njenimi poddisciplinami;
- Poznavanje in razumevanje pletilske stroke v slovenskem, evropskem in svetovnem prostoru;
- Razumevanje znanstvenih metod, kritične analize in sinteze ter njihova uporaba v reševanju konkretnih problemov: analiziranje, razvoj in izdelava pletenih izdelkov; načrtovanje, analiziranje in izvedba pletilskih procesov;
- Obvladovanje ekonomske porabe materiala, časa in energije pri pletilskih postopkih;
- Obvladovanje analize občutljivosti, sposobnost predvidevanja možnih problemov na področju pletilskih procesov in pletenih izdelkov;
- Sposobnost uporabe standardiziranih ter v strokovni literaturi navedenih preskuševalnih metod za ugotavljanje lastnosti pletiv in pletenin ter za zagotavljanje kakovosti; poznavanje specifičnih lastnosti pletenin v primerjavi z drugimi ploskovnimi tekstilnimi izdelki;
- Poznavanje strokovne terminologije s področja pletilstva v slovenskem in tujih jezikih;
- Uporaba informacijsko-komunikacijskih sistemov in opreme pri projektiranju, optimiranju in kontroli pletilskih procesov in pletenih izdelkov.

### **Objectives and competences:**

Students learn about the basic types of knitted fabrics/knitwear produced by various knitting technologies and techniques; At the same time, they learn about the constructional features of the knitting equipment and the characteristics of knitted fabrics/knitwear, depending on the production technology and raw materials.

#### **Subject-specific competences:**

- Knowledge and understanding of the development of the knitting in dependence on the general development of textiles, engineering and industry; understanding the integrity of the knitting profession and the connection between its sub-disciplines;
- Knowledge and understanding of the knitting profession in the Slovenian, European and global space;
- Understanding of scientific methods, critical analysis and synthesis and their use in solving real problems: analysis, development and manufacture of knitted products; planning, analyzing and implementing knitting processes;
- Mastering the economical use of material, time and energy in knitting processes;
- Managing the sensitivity analysis, the ability to anticipate possible problems in knitting processes and knitted products;
- The ability to use the standardized and professional test methods to determine the properties of knitted fabrics/knitwear and to ensure quality; knowing the specific characteristics of knitwear compared to other planar textile products;
- Mastering professional terminology in the field of knitting in Slovenian and foreign languages;
- Using information and communication systems and equipment in the design, optimization and control of knitting processes and knitted products.

### **Predvideni študijski rezultati:**

#### **Znanje in razumevanje:**

- Študent pozna pomen pletilstva v slovenskem in širšem prostoru;
- Pozna posamezne pletilske tehnologije in tehnike;
- Pozna konstrukcijske, fizikalne in uporabne lastnosti pletiv/pletenin;
- Zna oceniti prednosti, pomanjkljivosti in posebnosti posameznih vrst pletiv/pletenin;
- Pozna dejavnike, ki vplivajo na ekonomiko pletiva/pletenine;

### **Intended learning outcomes:**

#### **Knowledge and understanding:**

- The student knows the importance of knitting in the Slovenian and broader area;
- He knows individual knitting technologies and techniques;
- He knows constructional, physical and performance properties of knitted fabrics/knitwear;
- He is able to assess the advantages, disadvantages and specifics of individual types of knitted fabrics/knitwear;

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| <ul style="list-style-type: none"> <li>Pozna strokovno terminologijo s področja pletenja v slovenskem in najmanj enem svetovnem tujem jeziku;</li> <li>Razume vpliv parametrov surovin, strukture pletiva in pletilskega procesa na lastnosti in kakovost pletiva/pletenine.</li> </ul> <p><b>Uporaba:</b></p> <ul style="list-style-type: none"> <li>Študent zna razviti novo pletivo/pletenino;</li> <li>Zna izbrati optimalno surovino in izdelavno pletilsko tehnologijo za načrtovan pleten izdelek;</li> <li>Zna predvideti uporabne lastnosti pletiva/pletenine;</li> <li>Zna izdelati pletivo/pletenino načrtovane kakovosti in cene;</li> <li>Zna predpisati nego pletiva/pletenine;</li> <li>Zna izvesti neodvisno tehniško presojo na področju pletenja.</li> </ul> | <ul style="list-style-type: none"> <li>He knows factors affecting the economics of knitted fabrics/knitwear;</li> <li>He masters professional terminology in the field of knitting in Slovenian and at least one foreign language;</li> <li>He understands the influence of raw material, structural and knitting process parameters on properties and quality of knitted fabrics/knitwear.</li> </ul> <p><b>Application:</b></p> <ul style="list-style-type: none"> <li>The student can develop new knitted fabric/knitwear;</li> <li>He can select the optimal raw material and fabrication knitting technology for the planned knitted product;</li> <li>He can foresee the performance properties of knitted fabrics/knitwear;</li> <li>He can produce knitted fabrics/knitwear of the planned quality and price;</li> <li>He can prescribe care for knitted fabric/knitwear;</li> <li>He can carry out an independent technical assessment in the field of knitting.</li> </ul> |
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| <b>Metode poučevanja in učenja:</b>                                                        | <b>Learning and teaching methods:</b>                                                        |
| Predavanja, seminar, projektno delo, panelna razprava, laboratorijske vaje, računske vaje. | Lectures, seminar, project work, panel discussion, laboratory work, computational exercises. |

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| <b>Načini ocenjevanja:</b>                                                     | <b>Delež/Weight</b> | <b>Assessment:</b>                                                                    |
| Pisni izpit, kolokvij iz računskih vaj, opravljena predstavitev projektne dela | 100,00 %            | Written exam, colloquium in computational exercises, presentation of the project work |

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| <b>Reference nosilca/Lecturer's references:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ol style="list-style-type: none"> <li>HLADNIK, Aleš, PAVKO-ČUDEN, Alenka, FARAJIKHAH, Syamak. Image segmentation based determination of elastane core yarn diameter. <i>Fibres &amp; textiles in Eastern Europe : an international magazine devoted to current problems of the textile industries in Central and Eastern Europe</i>, ISSN 1230-3666, 2016, vol. 24, no. 2 (116), str. 29-36.</li> <li>PAVKO-ČUDEN, Alenka. Skewness and spirality of knitted structures = Poševnost in spiralnost pletiv. <i>Tekstilec : glasilo slovenskih tekstilcev</i>, ISSN 0351-3386. [Tiskana izd.], 2015, letn. 58, št. 2, str. 108-120.</li> <li>PAVKO-ČUDEN, A., SLUGA, F.. Measuring loop lengths of elasticised knitted fabrics. <i>The journal of The Textile Institute</i>, 2015, vol. 106, no. 3, str. 225-235.</li> <li>RANT, D., CIOBANU, R.a, BLAGA, M., PAVKO-ČUDEN, A.. Compression on foldable links-links knitted structures. <i>Tekstil ve konfeksiyon dergisi</i>, 2014, vol. 24, no. 4, str. 349-355.</li> <li>PAVKO-ČUDEN, A., STANKOVIĆ ELESINI, U.. Yarn diameter in elasticized knitted structures. <i>Industria textilă</i>, 2013, vol. 64, no. 6, str. 313-320.</li> <li>PAVKO-ČUDEN, A., HLADNIK, A., SLUGA, F.. Impact of material, structure and relaxation process parameters of elasticized single-knitted fabrics on loop length. <i>Textile research journal</i>, 2013, vol. 83, no. 1, str. 56-65.</li> </ol> |

# NAČRTOVANJE PREDPLEMENITILNIH POSTOPKOV

|                                   |                                         |
|-----------------------------------|-----------------------------------------|
| <b>Predmet:</b>                   | Načrtovanje predplemenitilnih postopkov |
| <b>Course title:</b>              | Planning pre-treatment processes        |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                  |

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| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

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| <b>Univerzitetna koda predmeta/University course code:</b> | 0068738 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 10030   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 30                 | 0                                       | 0                                                   | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Petra Eva Forte Tavčer

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

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|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

- Postopki priprave tekstilnih substratov na plemenjenje: razškrbljenje, izkuhavanje, pranje, beljenje, merceriziranje bombaža, optično osvetljevanje, termično fiksiranje sintetičnih vlaken, alkaliziranje PES, karbonizacija volne, encimske obdelave in drugi sodobni pripravljalni postopki.
- Pri posameznem postopku predstaviti namen in učinke obdelave, ustrezne strojne naprave, kemična sredstva, vpliv na okolje in druge možne negativne posledice obdelave.
- Analiza učinkov predobdelav na substratu.

**Vaje:**

**Content (Syllabus outline):**

- Processes of pretreatment of textile substrates to finishing: desizing, scouring, washing, bleaching, mercerizing, optical bleaching, thermofixation, carbonizing of wool. enzymatic treatment and other modern pretreatment processes.
- Introducing of purpose and effects of single treatment, machines, chemicals, influence on environment and other influences of treatments.
- Analysis of treatment effects on the substrates.

**Practical work:**

- Perform several pretreatment processes on different substrates and analysing the treatment effects.

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| <ul style="list-style-type: none"> <li>Izvesti nekaj osnovnih postopkov predobdelav na različnih materialih ter analizirati učinke obdelav.</li> </ul> <p><b>Seminar:</b><br/>Samostojno obdelati določeno sodobno temo v okviru pripravljanih del in jo predstaviti skupini.</p> | <p><b>Seminar:</b></p> <ul style="list-style-type: none"> <li>Individual research on selected topic and its presentation to colleagues.</li> </ul> |
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### Temeljna literatura in viri/Readings:

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| <ul style="list-style-type: none"> <li>FORTE-TAVČER, P. Osnovni postopki priprave tekstilij na plemenitenje. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2005; Handbook of Fiber Science and Technology. Vol. 1, Chemical Processing of Fibers and Fabrics. Ed. by M. Lewin in B. Sello. New York : Marcel Dekker, 1984;</li> <li>KARMAKAR, S. R. Chemical Technology in the Pretreatment Processes of Textiles. Amsterdam : Elsevier, 1999;</li> <li>SHORE, J. Colorants and Auxiliaries. Bradford : SDC, 1990;</li> <li>Izbrani članki iz domačih in tujih strokovnih revij, dostopnih v knjižnici Oddelka za tekstilstvo, grafiko in oblikovanje, NTF, in v elektronski obliki / Selected articles from national and foreign professional magazines available in the Library of the Department of Textiles, Graphic Arts and Design, NTF, and in electronic form; Spletne strani / websites.</li> </ul> |
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### Cilji in kompetence:

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| <p>Študenti spoznajo vrste in namen pripravljanih del pri plemenitenju tekstilij.</p> <ul style="list-style-type: none"> <li>Poznavanje tehnoloških postopkov pripravljanih del glede na specifičnost tekstilnega substrata.</li> <li>Poznavanje strukturnih in površinskih sprememb tekstilnih substratov po posamezni obdelavi.</li> <li>Sposobnost strokovne izbire sredstev in postopkov dela glede na želene uporabne lastnosti tekstilij.</li> <li>Sposobnost ekološkega razmišljanja.</li> <li>Poznavanje vplivov uporabljenih postopkov in sredstev na okolje.</li> </ul> | <p><b>Objectives and competences:</b></p> <p>Students get insight into sorts and purpose of pretreatment processes at finishing of textiles.</p> <ul style="list-style-type: none"> <li>They understand the specific needs of different substrates and final products.</li> <li>They understand the structural and surface changes on textile substrates after specific treatment.</li> <li>They are able to select right chemicals and machines for specific results.</li> <li>They have the ability of ecological thinking.</li> <li>They understand the influence of treatments on environment and human health.</li> </ul> |
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### Predvideni študijski rezultati:

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| <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>Študent pozna namen pripravljanih del in jih zna načrtovati ter smiselno vključiti v procese izdelave končnega izdelka.</li> <li>Pozna vpliv pogojev obdelav na končne lastnosti tekstilij.</li> <li>Pozna strojne naprave, kemikalije in optimalne pogoje obdelav.</li> <li>Pozna kemizem pomožnih sredstev in kemične spremembe vlaken pri posameznih postopkih.</li> <li>Zna oceniti rezultate obdelav.</li> <li>Pozna negativne vplive na okolje in človeka in jih zna minimizirati.</li> <li>Razume pomen vključevanja osnovnih biotehnoških postopkov v tekstilne in druge industrijske procese.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <ul style="list-style-type: none"> <li>Student knows the purpose of pretreatment processes, Knows to plan them and to include them into final production of a product.</li> <li>Knows the influence of treatment conditions on final properties of the product</li> <li>Knows machines, chemicals and treatment conditions</li> <li>Knows the chemical mechanisms of additives and chemical changes of fibers at single process</li> <li>Knows to test the results of treatments</li> <li>Knows the negative influences on environment and human health and how to avoid them</li> <li>Understands the meaning of biotechnological process in textile and other industrial processes.</li> </ul> |
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### Metode poučevanja in učenja:

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|-------------------------------------------|------------------------------------------------------------------------------|
| Predavanja, seminar, laboratorijske vaje. | <b>Learning and teaching methods:</b><br>Lectures, seminar, laboratory work. |
|-------------------------------------------|------------------------------------------------------------------------------|

| Načini ocenjevanja:         | Delež/Weight | Assessment:                     |
|-----------------------------|--------------|---------------------------------|
| Ustni/pisni izpit           | 50,00 %      | Oral/written exam               |
| Seminarsko delo             | 10,00 %      | Seminar work                    |
| Kolokvij iz opravljenih vaj | 40,00 %      | Written exam on laboratory work |

**Reference nosilca/Lecturer's references:**

1. ŠPIČKA, Nina, ZUPIN, Živa, KOVAČ, Janez, FORTE-TAVČER, Petra. Enzymatic scouring and low-temperature bleaching of fabrics constructed from cotton, regenerated bamboo, poly(lactic acid), and soy protein fibers. *Fibers and polymers*, ISSN 1229-9197, 2015, vol. 16, no. 8, str. 1723-1733. [COBISS.SI-ID 3157616],
2. ŠPIČKA, Nina, FORTE-TAVČER, Petra. Low-temperature bleaching of knit fabric from regenerated bamboo fibers with different peracetic acid bleaching processes. *Textile research journal*, ISSN 0040-5175, 2015, vol. 85, no. 14, str. 1497-1505, ilustr., doi: 10.1177/0040517514563728. [COBISS.SI-ID 3093872],
3. FORTE-TAVČER, Petra. Effects of cellulase enzyme treatment on the properties of cotton terry fabrics. *Fibres & textiles in Eastern Europe : an international magazine devoted to current problems of the textile industries in Central and Eastern Europe*, ISSN 1230-3666, 2013, vol. 21, no. 6 (102), str. 100-105, ilustr. [COBISS.SI-ID 2944368],
4. PREŠA, Polonca, FORTE-TAVČER, Petra. Low water and energy saving process for cotton pretreatment. *Textile research journal*, ISSN 0040-5175, 2009, vol. 79, no. 1, str. [76]-88, ilustr. [COBISS.SI-ID 2110320].
5. FORTE-TAVČER, Petra, KOŠIR, Suzana, CSISZÁR, Emília. Properties of differently printed and easy-care finished linen fabrics. *Coloration technology : the journal of the Society of Dyers and Colourists*, ISSN 1472-3581, 2011, vol. 127, no. 3, str. 194-199.. [COBISS.SI-ID 2552176].

## NAČRTOVANJE PREJ

**Predmet:** Načrtovanje prej  
**Course title:** Planning yarns  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068731

**Koda učne enote na članici/UL Member course code:** 11039

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Dunja Šajn Gorjanc

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

- Predilne lastnosti različnih vrst prediv;
- Struktura in lastnosti enojnih, združenih, sukanih, oplášenih in obsukanih predivnih prej;
- Analiza vplivnih dejavnikov na konstrukcijo, strukturo in lastnosti predivne preje;
- Vrste in lastnosti predivnih prej glede na predilnik, na katerem so spredene;
- Teorija tehnoloških faz priprave prediva, mikanja, združevanja in raztezanja, priprave za česanje, česanja, predpredenja in predenja na različnih vrstah predilnikov;
- Analiza vpliva predilnega procesa na lastnosti, produktivnost in ceno predivne preje.

**Content (Syllabus outline):**

- Spinning properties of different types of fibres;
- The structure and properties of single, combined, twisted and cored yarns;
- An analysis of influencing factors on the construction, structure and properties of spinning yarn;
- Types of yarn characteristics based on the spinning machine;
- The theory of technological phases of preparing fibres, carding, doubling and drawing, and of preparation for combing, combing, pre-spinning and spinning on different types of spinning machines;

|  |                                                                                                                                                                 |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>The analysis of the impact of the spinning process on the properties, productivity and cost of spinning yarn.</li> </ul> |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Temeljna literatura in viri/Readings:

- NIKOLIĆ, M., in PERIĆ, P. Teorija in tehnologija predenja. Del 1. Ljubljana : FNT VTOZD Tekstilna tehnologija, 1990;
- NIKOLIĆ, M. Teorija in tehnologija predenja : izdelava stenja – predpreje. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 1997;
- ŠAJN GORJANC, D. Načrtovanje izdelave predivne preje [Elektronski vir] : študijsko gradivo, 2014;
- ŠAJN GORJANC, D. Preje in načrtovanje prej [Elektronski vir] : navodila za vaje, 2013;
- KLEIN, W. The Technology of Short-Staple Spinning. Manchester : The Textile Institute, 1994.

### Cilji in kompetence:

#### Cilji:

- Študenti spoznajo temeljne principe projektiranja in izdelave predivne preje iz različnih vrst prediv;
- Spoznajo in analizirajo vplive različnih dejavnikov na konstrukcijo predivne preje;
- Spoznajo principe analize in konstrukcije predivne preje iz različnih vrst prediv in različnih postopkih predenja.

#### Kompetence:

- Raziskava in izbira optimalnih dejavnikov pri konstrukciji predivne preje glede na njeno končno uporabnost;
- Sposobnost izbire optimalnega tehnološkega procesa za izdelavo predivne preje glede na njeno končno uporabnost.

### Objectives and competences:

#### Objectives:

- To learn the basic principles of the design and manufacture of spinning yarn from different types of fibres;
- To learn and to analyse the impact of various factors on the structure of spinning yarn;
- To gain insight into the analysis and the construction of spinning yarn from different types of fibres and various spinning processes.

#### Competences:

- The research and selection of optimal factors in the construction of spinning yarn, depending on the yarn's final usefulness;
- The ability to choose the optimum technological process for the manufacture of spinning yarn, depending on its final usefulness.

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Znanje teorije konstrukcije različnih vrst predivnih prej ter vpliva konstrukcije preje na mehansko-fizikalne in uporabne lastnosti različnih vrst in zgradb predivnih preje;
- Znanje in razumevanje vpliva različnih tehnoloških faz na kakovost polizdelkov in na kakovost predivne preje.

### Intended learning outcomes:

#### Knowledge and understanding:

- A knowledge of the theory of the structure of various types of yarns and the impact of construction on the mechanical and physical properties of yarn and on the usefulness of different types and construction of yarns;
- A knowledge of yarns and an understanding of the impact of different technological stages on the quality of intermediate products and the quality of spinning yarn.

### Metode poučevanja in učenja:

Predavanja, računske in eksperimentalne vaje v mehansko tehnološkem laboratoriju na oddelku, ekskurzije v slovenskih predilnicah.

### Learning and teaching methods:

Lectures, computational and tutorial work performed in the mechanical laboratory at the department, excursions to Slovenian spinning mills.

### Načini ocenjevanja:

### Delež/Weight

### Assessment:

|                    |         |                    |
|--------------------|---------|--------------------|
| Pisni izpit        | 50,00 % | Written exam       |
| Pisni izpit iz vaj | 50,00 % | Tutorial work exam |

### Reference nosilca/Lecturer's references:

1. ŠAJN GORJANC, Dunja, BIZJAK, Matejka. The influence of constructional parameters on deformability of elastic cotton fabrics. *Journal of engineered fibers and fabrics*, 2014, vol. 9, iss. 1, str. 38-46;
2. ŠAJN GORJANC, Dunja, DIMITROVSKI, Krste, BIZJAK, Matejka. Thermal and water vapor resistance of the elastic and conventional cotton fabrics. *Tex. res. j.*, 2012, vol. 82, no. 14, str. 1498–1506;
3. ŠAJN GORJANC, Dunja, BUKOŠEK, Vili. The behaviour of fabric with elastane yarn during streching. *Fibres Text. East. Eur.*, 2008, vol. 16, no. 3 (68), str. 63–68;
4. ŠAJN GORJANC, Dunja. Vpliv materiala na kakovost šiva = Influence of the material on the seam quality. *Tekstilec*, 2007, letn. 50, št. 4/6, str. 77–92;
5. ŠAJN GORJANC, Dunja. Elastične lastnosti sukancev po raztezanju = Elastic properties of sewing threads after stretching. *Tekstilec*, 2006, letn. 49, št. 10/12, str. 218–224.

# NAČRTOVANJE TISKARSKIH POSTOPKOV

**Predmet:** Načrtovanje tiskarskih postopkov  
**Course title:** Planning printing processes  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068752

**Koda učne enote na članici/UL Member course code:** 10032

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 30                 | 0                                       | 0                                                   | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Petra Eva Forte Tavčer

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

Predavanja/Lectures:

Angleščina, Slovenščina

Vaje/Tutorial:

Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

Spoznati načine, postopke in tehnike tiskanja tekstila:

- Zgodovinski razvoj tiska;
- Strojne naprave za filmski, transferni in digitalni tisk;
- Postopki izdelave tiskovnih form za filmski tisk;
- Postopki reprodukcije vzorcev za filmski in digitalni tisk;
- Priprava blaga pred tiskanjem;
- Sodobna barvila za tiskanje tekstila; Sestava tiskarskih past oz. črnih;
- Pomen naknadnih obdelav;
- Specialni postopki tiskanja;

**Content (Syllabus outline):**

Processes and techniques of textile printing:

- Historical development of printing;
- Machines and equipment for screen, transfer and digital printing;
- Production of printing forms for screen printing;
- Sample reproduction;
- Pretreatment of fabric;
- Dyes and pigments for textile printing;
- Constitution of printing pastes and inks;
- Curing, steaming and aftertreatment;
- Special printing processes;
- Ecological issues of dyes, chemicals and processes.

|                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                            |
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| <ul style="list-style-type: none"> <li>Nove metode vrednotenja rezultatov in novi postopki tiskanja;</li> <li>Ekološka problematika barvil, pomožnih sredstev in postopkov.</li> </ul> <p><b>Vaje:</b></p> <ul style="list-style-type: none"> <li>Izdelava tiskarskih past, ročni tisk z različnimi sodobnimi barvili, jedki in rezervni tisk, izvedba transfernega tiska, izvedba digitalnega tiska.</li> </ul> | <p><b>Practical work:</b></p> <ul style="list-style-type: none"> <li>Print paste production, hand screen printing with different dyes (reactive, vat, disperse, acid, pigments), discharge and reserve printing, transfer and digital printing.</li> </ul> |
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#### **Temeljna literatura in viri/Readings:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>FORTE-TAVČER, P. Tiskanje tekstilij : zapiski predavanj. Ljubljana : NTF, 2005;</li> <li>FORTE-TAVČER, P. Navodila za vaje iz tiskanja tekstilij. Ljubljana : NTF, 2005;</li> <li>BERAVS, F. Tekstilni procesi. Tiskanje in apretiranje tekstilij. Ljubljana : NTF, 2001;</li> <li>MILES, L. W. C. Textile Printing. Bradford : SDC, 2004;</li> <li>STOREY, J. Textile Printing. London : Thames and Hudson, 1992;</li> <li>BERAVS, F. Tiskanje tekstilij : zapiski predavanj. Ljubljana, 1976;</li> <li>ROUETTE, H. K., LINDNER, A., in SCHWAGER, B. Lexikon für Textilveredlung. Dülmen : Laumann-Verlag, 1995;</li> <li>Izbrani članki iz domačih in tujih strokovnih revij, dostopno v knjižnici Oddelka za tekstilstvo, grafiko in oblikovanje, NTF / Selected articles from national and foreign professional magazines, available in the Library of the Department of Textiles, Graphic Arts and Design, NTF;</li> <li>Spletne strani proizvajalcev barvil, pomožnih kemikalij in strojne opreme / Websites of manufacturers of dyes, auxiliary chemicals and equipment.</li> </ul> |
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#### **Cilji in kompetence:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Študenti spoznajo postopke tiskanja tekstila.</li> <li>Seznajajo se s tiskarskimi tehnikami, orodji, strojno opremo, s pripravo barvil in tiskarskih past ter s kemičnimi procesi pri tiskanju.</li> <li>Povežejo strukturo vlaken z možnostmi aplikacije barvil ali drugih komponent.</li> <li>Spoznajo zgodovino vzorčenja blaga s tiskanjem.</li> <li>Spoznajo tehnično dokumentacijo in proizvajalce tiskarskih barvil in pomožnih sredstev.</li> </ul> | <p><b>Objectives and competences:</b></p> <ul style="list-style-type: none"> <li>Students acquire knowledge of the textile printing which is necessary for professional and quality implementation of the process; printing techniques, tools, machines, chemicals preparations, print pastes preparation.</li> <li>Students get insight into the conditions for reactions between dyes and fibers according to their structures.</li> <li>They acquire the main producers of dyes and additives and how to manage their technical documentation.</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Predvideni študijski rezultati:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Poznavanje in razumevanje:</p> <ul style="list-style-type: none"> <li>Študenti spoznajo postopke tiskanja tekstila;</li> <li>Seznajajo se s tiskarskimi tehnikami, orodji, strojno opremo, s pripravo barvil in tiskarskih past ter s kemičnimi procesi pri tiskanju;</li> <li>Spoznajo zgodovinski razvoj tiskanja na tekstil;</li> <li>Spoznajo tehnično dokumentacijo in proizvajalce tiskarskih barvil in pomožnih sredstev;</li> <li>Uporabljajo ustrezne analize metode za vrednotenje rezultatov dela.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p>Knowledge and understanding:</p> <ul style="list-style-type: none"> <li>Students understand of the aim and the goals of printing processes of textiles;</li> <li>They know the equipment, optimal processing conditions, auxiliaries and chemicals;</li> <li>They know the preparation of printing pastes and fabrics;</li> <li>They learn about technical documentation of dyes and auxiliaries;</li> <li>They are able to assess and interpret the results of treatments;</li> <li>They learn how to document the process conditions and the results;</li> <li>They know how to include the sustainability into the process;</li> <li>They can use the appropriate analytical techniques.</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Metode poučevanja in učenja:**

Predavanja, seminarji, laboratorijske vaje.

**Learning and teaching methods:**

Lectures, seminars, laboratory work.

**Načini ocenjevanja:****Delež/Weight****Assessment:**

|                             |         |                                 |
|-----------------------------|---------|---------------------------------|
| Ustni / pisni izpit         | 50,00 % | Written / oral exam             |
| Seminar work                | 10,00 % | Project                         |
| Kolokvij iz opravljenih vaj | 40,00 % | Written exam in laboratory work |

**Reference nosilca/Lecturer's references:**

1. FORTE-TAVČER, Petra, AHTIK, Jure, GODEC, Mateja. Lastnosti fosforescenčnih pigmentov, tiskanih na tkanino = Characteristics of phosphorescent pigments printed on fabric. *Tekstilec : glasilo slovenskih tekstilcev*, ISSN 0351-3386. [Tiskana izd.], 2016, vol. 59, no. 3, str. 226-236, ilustr. [COBISS.SI-ID 3294832],
2. GOLJA, Barbara, FORTE-TAVČER, Petra. Textile functionalisation by printing fragrant, antimicrobial and flame- retardant microcapsules = Funkcionalizacija tekstilij s tiskanjem dišečih, protimikrobnih in protigorljivih mikrokapsul. *Tekstilec : glasilo slovenskih tekstilcev*, ISSN 0351-3386. [Tiskana izd.], 2016, vol. 59, no. 4, str. 278-288, ilustr. <http://www.tekstilec.si/?p=2114&lang=en>. [COBISS.SI-ID 3354480],
3. GOLJA, Barbara, ŠUMIGA, Boštjan, FORTE-TAVČER, Petra. Fragrant finishing of cotton with microcapsules: comparison between printing and impregnation. *Coloration technology : the journal of the Society of Dyers and Colourists*, ISSN 1472-3581, 2013, vol. 129, no. 5, str. 338-346, doi: 10.1111/cote.12044. [COBISS.SI-ID 2897008],
4. FORTE-TAVČER, Petra, ŠTULAR, Danaja, AHTIK, Jure. Digital printing of anaglyph images onto textile = Anaglyph görüntülerin dijital baskı ile tekstil üzerine basılması. *Tekstil ve konfeksiyon dergisi : journal of textile and apparel*, ISSN 1300-3356, 2013, vol. 23, no. 4, str. 381-386. [COBISS.SI-ID 2959216],
5. MIKUŽ, Mašenka, ŠOSTAR-TURK, Sonja, FORTE-TAVČER, Petra. Properties of ink-jet printed, ultraviolet-cured pigment prints in comparison with screen-printed, thermo-cured pigment prints. *Coloration technology : the journal of the Society of Dyers and Colourists*, ISSN 1472-3581, 2010, vol. 126, no. 5, str. 249-255. [COBISS.SI-ID 2428016]

# NAČRTOVANJE TKANIN

**Predmet:** Načrtovanje tkanin  
**Course title:** Planning woven fabrics  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068734

**Koda učne enote na članici/UL Member course code:** 11350

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 30                 | 0                                       | 0                                                   | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Matejka Bizjak

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Redni vpis v letnik študija.

**Prerequisites:**

Regular enrollment in the study year.

**Vsebina:**

- Pojem tkanine, njihova struktura, vrste tkanin in delitev;
- Oblikovni (vzorci – oblika, velikost, barve..itd.), konstrukcijski (finost in vrsta preje v osnovi in votku, gostota osnove in votka, vezava), tehnološki (zmogljivosti strojne opreme in posebnosti postopka izdelave), ekonomski parametri (lastna cena surovih, gotovih tkanin, tržna cena..);
- Lastnosti tkanin: fizikalne, kemijske, mehanske, prepustnostne/prevodnostne, svetlobno/barvne,

**Content (Syllabus outline):**

- The concept of woven fabric and its structure, types of woven fabrics and classification;
- Design (patterns - shape, size, colors ... etc), structural (linear density and type of yarn in warp and weft, warp and weft density, weave), technological (hardware capabilities and specifics of the manufacturing process), economic parameters (price of raw and finished fabrics, market price ..);
- Fabric characteristics: physical, chemical, mechanical, permeability / conductivity, light / color;

|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Faze izdelave tkanin: Priprava (previjanje, snovanje, škrobljenje, vlaganje/prevezovanje) in tkanje;</li> <li>Mehanizmi tkalskega stroja in njihov pomen pri izbiri stroja za izdelavo posameznih tkanin.</li> </ul> <p><b>Vaje:</b></p> <ul style="list-style-type: none"> <li>Dekompozicija tkanin;</li> <li>Načrtovanje tkanin z zelenimi lastnostmi.</li> </ul> | <ul style="list-style-type: none"> <li>Fabric production phases: preparation (winding, warping, sizing, weft preparation) and weaving;</li> <li>Mechanisms of the weaving machine and their importance in the selection of the machine for making individual fabrics.</li> </ul> <p><b>Exercises:</b></p> <ul style="list-style-type: none"> <li>Decomposition of fabrics;</li> <li>Design of fabrics with desired properties.</li> </ul> |
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### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>JAKŠIČ, D. Priprava osnove in votka za tkanje. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2001;</li> <li>JAKŠIČ, D. Tehnologija tkanja. Del 2, Tkanje. Ljubljana : Fakulteta za naravoslovje in tehnologijo, VTO Tekstilna tehnologija, 1980;</li> <li>JAKŠIČ, D. Projektiranje in konstrukcija tekstilij. Ljubljana : FNT, VTOZD Tekstilna tehnologija, 1988;</li> <li>HENNING, H. Gewebe Technik. Leipzig : VEB Fachbuchverlag, 1965;</li> <li>ŽIBERNA-ŠUJICA, M., in GAČNIK, A. Kompozicija in uporabnost tkanin. Maribor : VTŠ-VTO Strojništvo, 1979,</li> <li>DOBNIK-DUBROVSKI, P. Računalniško konstruiranje listnih tkanin : navodila za vaje. Maribor : Fakulteta za strojništvo, Oddelek za tekstilstvo, 2004;</li> <li>Literatura je dosegljiva v knjižnici Oddelka za tekstilstvo, grafiko in oblikovanje, NTF. / Literature is available in the Library of the Department of Textiles, Graphic Arts and Design, NTF.</li> </ul> |
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### Cilji in kompetence:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Študenti se seznaniijo z oblikovnimi, konstrukcijskimi, tehnološkimi, ekonomskimi, ekološkimi in drugimi parametri, ki jih je treba upoštevati pri načrtovanju tkanin.</li> <li>Seznaniijo se z vzročno posledičnimi vplivi parametrov na strukturo in lastnosti tkanin.</li> <li>Spoznajo namen posameznih tehnoloških faz pri izdelavi, njihove možne variacije in možnosti regulacije za doseganje želenih uporabnih lastnosti.</li> </ul> <p><b>Predmetno specifične kompetence:</b></p> <ul style="list-style-type: none"> <li>Poznavanje dejavnikov, ki vplivajo na načrtovanje tkanin;</li> <li>Razumevanje njihovega vpliva in medsebojnih soodvisnosti;</li> <li>Poznavanje fizikalnih, kemijskih, mehanskih, prepustnostnih, fizioloških in drugih lastnosti tkanin;</li> <li>Razumevanje vpliva uporabljenih dejavnikov na strukturo in lastnosti tkanin;</li> <li>Sposobnost načrtovanja tkanin z zelenimi lastnostmi.</li> </ul> | <p><b>Objectives and competences:</b></p> <ul style="list-style-type: none"> <li>Students learn about design, construction, technological, economic, ecological and other parameters that need to be considered when designing fabrics.</li> <li>They are acquainted with the causal effect of the parameters on the structure and properties of fabrics.</li> <li>They learn about the purpose of individual technological phases in the manufacture, their possible variation and the possibility of regulation in order to achieve the desired performance properties.</li> </ul> <p><b>Subject-specific competences:</b></p> <ul style="list-style-type: none"> <li>Knowing the factors that influence the design of fabrics;</li> <li>Understanding their impact and interdependence;</li> <li>Knowledge of the physical, chemical, mechanical, permeability, physiological and other properties of fabrics;</li> <li>Understanding the influence of the factors used on the structure and properties of fabrics;</li> <li>Ability to design /plan fabrics with desired properties.</li> </ul> |
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### Predvideni študijski rezultati:

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| <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>Poznavanje različnih tipov tkanin in njihovo uvrščanje v različne kategorije glede na različne kriterije;</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>Knowledge and understanding:</b></p> <ul style="list-style-type: none"> <li>Knowledge of different types of fabrics and their classification in different categories according to different criteria;</li> </ul> |
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| <ul style="list-style-type: none"> <li>Razumevanje vpliva oblikovnih, konstrukcijskih, tehnoloških in ostalih parametrov na strukturo in lastnosti tkanine;</li> <li>Poznavanje in razumevanje posameznih tehnoloških faz v pripravi za tkanje in tkanju;</li> </ul> <b>Uporaba:</b> <ul style="list-style-type: none"> <li>Znanje dekomponiranja tkanine;</li> <li>Znanje načrtovanja izdelave tkanine – potrebne faze vključno z izračuni porabe materiala, snovanja, vlaganja osnovnih niti in izračuna lastne cene surove tkanine.</li> </ul> | <ul style="list-style-type: none"> <li>Understanding the influence of design, construction, technological and other parameters on the structure and properties of the fabric;</li> <li>Knowledge and understanding of individual technological phases in the preparation for weaving and weaving.</li> </ul> <b>Application:</b> <ul style="list-style-type: none"> <li>Knowledge of decomposition of the fabric;</li> <li>Knowledge of fabric design/planning - the necessary phases including calculations of material consumption, warp insertion and the calculation of the cost price of the raw fabric.</li> </ul> |
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| <b>Metode poučevanja in učenja:</b>                      | <b>Learning and teaching methods:</b>                    |
| Predavanja, laboratorijske vaje, seminar dekomponiranja. | Lectures, laboratory work, fabric decomposition seminar. |

|                                                                 |                     |                                                            |
|-----------------------------------------------------------------|---------------------|------------------------------------------------------------|
| <b>Načini ocenjevanja:</b>                                      | <b>Delež/Weight</b> | <b>Assessment:</b>                                         |
| Opravljen seminar in laboratorijske vaje. Pisni in ustni izpit. | 100,00 %            | Passed seminar and laboratory work. Written and oral exam. |

#### Reference nosilca/Lecturer's references:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <ol style="list-style-type: none"> <li>BIZJAK, M., DIMITROVSKI, K. The role of technological parameters at woven fabrics construction. Int. j. polym. mater.. [Tiskana izd.], 2000, vol. 47, no. 4, str. 603-612;</li> <li>BIZJAK, M. Beton ojačan tekstilom = Textile reinforced concrete = Textilverstärkter Beton. Tekstil, 2002, vol. 51, no. 1, str. 22-30;</li> <li>STANKOVIĆ, S., POPOVIĆ, D., POPARIĆ, G., BIZJAK, M. Ultraviolet protection factor of gray-state plain cotton knitted fabrics. Textile Research Journal, 2009, vol. 79, no. 11, str. 1034-1042;</li> <li>ŠAJN GORJANC, D., DIMITROVSKI, K., BIZJAK, M. Thermal and water vapour resistance of the elastic and conventional cotton fabrics. Textile Research Journal, 2012, vol. 82, no. 14, str. 1498-1506;</li> <li>GOŘENŠEK, M., SEVER, M., DEBELAK, F., RIJAVEC, T., BIZJAK M., BRAČKO S. Pametne tekstilije za zavese: Impregnirno barvanje poliestrne preje s fosforescenčnimi pigmenti. Tekstilec, 2006, let. 49, št.10-12, str. 201 – 204;</li> <li>RIJAVEC, T., BIZJAK, M. Influence of constructional parameters on end-use properties of fine cotton shirting made of compact yarn. Vlákna text. (Svit), 2010, roč. 17, 2, str. 21-26.</li> </ol> |
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# NAČRTOVANJE VLAKNOVIN IN KOMPOZITOV

|                                   |                                     |
|-----------------------------------|-------------------------------------|
| <b>Predmet:</b>                   | Načrtovanje vlaknovin in kompozitov |
| <b>Course title:</b>              | Planning non-wovens and composites  |
| <b>Članica nosilka/UL Member:</b> | UL NTF                              |

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|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

|                                                            |         |
|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0068739 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 10034   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 0                   | 15                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Dunja Šajn Gorjanc

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

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|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
Pogoji za prijavo h končnemu izpitu so uspešno opravljene računske in eksperimentalne vaje.

**Prerequisites:**

Enrolment into study year.  
The prerequisite for applying to the final exam are successfully performed computational and experimental exercises.

**Vsebina:**

**Predavanja:**

- Definicije in vrste netkanih tekstilij. Zgodovinski razvoj netkanih tekstilij. Trendi razvoja proizvodnje in porabe netkanih tekstilij. Klasifikacije netkanih tekstilij. Teorija in tehnologija procesnih faz izdelave netkanih tekstilij.
- Postopki izdelave koprenskih tekstilij. Teorija in tehnologija suho in mokro položenih-naplavljenih koprenskih tekstilij. Teorija in

**Content (Syllabus outline):**

**Lectures:**

- Definitions and types of nonwoven textiles. Historical development of nonwoven textiles. Trends in the development and consumption of nonwovens. Classifications of nonwoven textiles. Theory and technology of process phases of nonwoven fabric production.
- Methods of production of nonwoven textiles. Theory and technology of dry and wet-laid web formation of nonwoven textiles. The theory and

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| <p>tehnologija ekstrudiranih koprenskih tekstilij. Teorija in tehnologija utrjevanja koprenskih tekstilij.</p> <ul style="list-style-type: none"> <li>Struktura in lastnosti plastenih tekstilij. Izdelava in dodelava taftanih preprog. Teorija in tehnologije izdelave plastenih tekstilij. Laminiranje s različnimi vezivi in postopki. Ekstrudirani dve ali večplastni kompoziti.</li> <li>Teorija in tehnologija dodelave netkanih tekstilij.</li> </ul> <p><b>Vaje:</b></p> <ul style="list-style-type: none"> <li>Preiskava mehansko-fizikalnih in izotropnih lastnosti različnih vrst netkanih tekstilij;</li> <li>Spoznavanje vpliva postopka utrjevanja netkanih tekstilij na strukturo in lastnosti končnih izdelkov;</li> <li>Optimiziranje kinematičnih in tehnoloških parametrov po tehnoloških fazah izdelave koprenskih tekstilij na različno komponiranih procesnih linijah.</li> </ul> | <p>technology of extruded web formation of nonwovens. Theory and technology of web bonding.</p> <ul style="list-style-type: none"> <li>Structure and properties of laminated textiles. Manufacture and finishing of tufted carpets. Theory and technologies for the production of lamianted textiles. Lamination with various binders and processes. Extruded two or more layered composites.</li> <li>Theory and technology of nonwoven fabric finishing process.</li> </ul> <p><b>Exercises:</b></p> <ul style="list-style-type: none"> <li>Investigation of mechanical-physical and isotropic properties of various types of nonwoven textiles;</li> <li>Getting to know the impact of the process of consolidating nonwoven textiles on the structure and properties of finished products;</li> <li>Optimization of kinematic and technological parameters according to the technological phases of the production of textile textiles on various composite process lines.</li> </ul> |
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#### Temeljna literatura in viri/Readings:

- ŠAJN GORJANC, Dunja. Postopki izdelave netkanih tekstilij in kompozitov : študijsko gradivo. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2015.
- ŠAJN GORJANC, D. Načrtovanje vlaknovin in kompozitov [Elektronski vir] : študijsko gradivo. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2014.
- ŠAJN GORJANC, D. Procesne linije za izdelavo koprenskih tekstilij : študijsko gradivo. . Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2014.
- NIKOLIĆ, M., in NIKOLIĆ, Z. Netkane tekstilije. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2004.
- ALBRECHT, W., FUCHS, H., in KITTELMANN, W. Vliesstoffe. Weinheim : Wiley-VCH, 2000.
- JIRSÁK, O., in WADSWORTH, L. C. Nonwoven Textiles. Durham : Carolina Academic Press, 1999.

#### Cilji in kompetence:

##### Cilji:

- Študenti spoznajo temeljne principe izdelave različnih vrst enoplastnih in večplastnih koprenskih tekstilij.
- Spoznavanje strukture in lastnosti izotropnih in anizotropnih vlaknovin.
- Spoznajo različne tehnologije izdelave temeljnega sloja za tvorbo enoplastnih in večplastnih koprenskih tekstilij.
- Spoznajo kriterije in metodologijo načrtovanja različnih tehnoloških procesnih linij glede značilnosti temeljnega sloja in glede na način utrjevanja koprenske tekstilije.
- Spoznajo različne postopke utrjevanja in dodelave koprenskih tekstilij.
- Spoznajo kinematiko in dinamiko različnih strojev za izdelavo in utrjevanje vlaknovin.
- Spoznajo kako različne procesne faze vplivajo na strukturo, mehansko-fizikalne, prepustne in

#### Objectives and competences:

##### Objectives:

- Students learn about the basic principles of production of different kinds of single-layer and multi-layer nonwoven textiles.
- Students learning about the structure and properties of isotropic and anisotropic nonwoven web.
- They recognize various technologies for the production of a basic layer for the formation of single-layered and multilayered nonwoven textiles.
- Students meet the criteria and methodology of designing different technological process lines regarding the characteristics of the web and the method of web bonding of nonwovens.
- They recognize various processes of web bonding and finishing of nonwoven textiles.
- They are acquainted with the kinematics and dynamics of various machines for web forming and bonding.

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| <p>izolacijske lastnosti različnih zgradb in struktur koprenskih tekstilij.</p> <ul style="list-style-type: none"> <li>Spoznajo področja uporabe netkanih tekstilij in najnovejše dosežke na različnih področjih izdelave in aplikacije netkanih tekstilij kot enoplastne, laminatne in kompozitne strukture.</li> </ul> <p><b>Kompetence:</b></p> <ul style="list-style-type: none"> <li>Poznavanje vpliva različnih surovinskih in tehnoloških parametrov na strukturne in uporabne lastnosti vlaknovin in različnih vrst netkanih tekstilij;</li> <li>Razumevanje vpliva različnih tehnoloških faz, postopkov utrjevanja in stopnje dodelave na lastnosti polizdelkov in končnih izdelkov;</li> <li>Glede na postopek utrjevanja spozna metodologijo napovedovanja lastnosti in značilnosti netkanih tekstilij in opredelitev optimalnih aplikacij le-teh;</li> <li>Načrtovanje procesnih linij z opredelitvijo produktivnosti, porabe energentov in cene netkanih tekstilij;</li> <li>Uporaba klasičnih in sodobnih preizkuševalnih naprav za določanje in vrednotenje kakovosti polizdelkov in izdelkov iz netkanih tekstilij;</li> <li>Spoznavanje strokovne terminologije s področja netkanih tekstilij.</li> </ul> | <ul style="list-style-type: none"> <li>Students recognize how different process phases affect the structure, mechanical-physical, permeable and insulating properties of various buildings and structures of nonwoven textiles.</li> <li>They recognize the fields of use of nonwoven textiles and the latest achievements in various fields of manufacture and application of nonwoven textiles as a single-layer, laminate and composite structure.</li> </ul> <p><b>Competences:</b></p> <ul style="list-style-type: none"> <li>Knowledge of the influence of different raw material and technological parameters on the structural and useful properties of fibers and various types of nonwoven textiles;</li> <li>Understanding the influence of different technological phases, web bonding processes and degree of finishing on the properties of semi-finished products and finished products;</li> <li>According to the consolidation process, the methodology for predicting the characteristics and characteristics of nonwoven textiles and defining the optimal applications of these materials;</li> <li>Design process lines with the definition of productivity, energy consumption and the price of nonwoven textiles;</li> <li>Use of classical and modern testing devices for determining and evaluating the quality of semi-finished and nonwoven textile products;</li> <li>Learning about professional terminology from nonwoven textiles.</li> </ul> |
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| <p><b>Predvideni študijski rezultati:</b></p> <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>Pozna strukturne in kakovostne lastnosti ter področja uporabe različnih vrst netkanih tekstilij;</li> <li>Teoretično in tehnološko znanje za strokovno načrtovanje in izbiro optimalne procesne linije za izdelavo različnih vrst in struktur netkanih tekstilij;</li> <li>Razume vplive različnih tehnoloških faz na kakovost polizdelkov in izdelkov;</li> <li>Zna strokovno in argumentirano izbrati optimalne postopke utrjevanja koprenskih tekstilij glede na namembnost le-teh.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>Knowledge and understanding:</b></p> <ul style="list-style-type: none"> <li>He knows the structural and qualitative characteristics and uses of various types of nonwoven textiles;</li> <li>Theoretical and technological knowledge for professional design and selection of an optimal process line for the manufacture of various types and structures of nonwoven textiles;</li> <li>Understand the impacts of different technological phases on the quality of semi-finished products and end products;</li> <li>He knows professionally and argumentatively to choose the optimal processes for consolidating nonwoven textiles according to their purpose.</li> </ul> |
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| <p><b>Metode poučevanja in učenja:</b></p> <p>Predavanja in računske vaje v mehansko tehnološkem laboratoriju na oddelku ter ekskurzije v podjetja, ki proizvajajo netkane tekstilije.</p> | <p><b>Learning and teaching methods:</b></p> <p>Lectures, and computational exercises in the mechanical and technological laboratory at the department and excursions to companies that produce non-woven textiles.</p> |
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**Načini ocenjevanja:**

**Delež/Weight Assessment:**

|              |         |               |
|--------------|---------|---------------|
| Ustni izpit  | 50,00 % | Written exam  |
| Izpit iz vaj | 50,00 % | Tutorial exam |

**Reference nosilca/Lecturer's references:**

1. ŠAJN GORJANC, Dunja, BERNJAK, Žanin, ČERNE HOČEVAR, Lidija. Influence of some structural properties of incontinence diapers on their functionality = Vpliv nekaterih strukturnih lastnosti plenic za inkontinenco na njihovo funkcionalnost. Tekstilec, ISSN 0351-3386. [Tiskana izd.], 2016, vol. 59, no. 4, str. 298-310;
2. ŠAJN GORJANC, Dunja, ZUPIN, Živa. Responses of fabric from lyocell/natural bamboo yarn to loading. The journal of The Textile Institute, ISSN 0040-5000, 19. jan. 2017, vol. , no. , 8 str;
3. ŠAJN GORJANC, Dunja, PRAČEK, Stanislav. The prediction of elastic behaviour of fabric from stretch yarn = Predictia comportamentului la elasticitate al tesaturilor din fire elastice. Industria textilă, ISSN 1222-5347, 2016, vol. 67, no. 3, str. 157-163;
4. ŠAJN GORJANC, Dunja, BIZJAK, Matejka. Impact of pre-finishing process on comfort characteristics of stretchable cotton fabric. Journal of engineered fibers and fabrics, ISSN 1558-9250, 2015, vol. 10, iss. 3, str. 57-68;
5. ŠAJN GORJANC, Dunja, BIZJAK, Matejka. The influence of constructional parameters on deformability of elastic cotton fabrics. Journal of engineered fibers and fabrics, ISSN 1558-9250, 2014, vol. 9, iss. 1, str. 38-46.

# NEGA TEKSTILIJ 1

**Predmet:** Nega tekstilij 1  
**Course title:** Textile care 1  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068753

**Koda učne enote na članici/UL Member course code:** 11295

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 15                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Mateja Kert

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
 Pogoj za pristop k pisnemu izpitu je pozitivna ocena poročila laboratorijskih vaj ter pozitivno opravljena javna predstavitev seminarskega dela.

**Prerequisites:**

Enrolment into the study year.  
 Prerequisite for approach to written exam are positively passed laboratory practice report and public presentation of a coursework.

**Vsebina:**

**Predavanja:**

- Oznake za nego tekstilij v skladu z veljavnim standardom;
- Površinsko aktivne snovi (ionska narava, struktura, adsorpcija, micelizacija);
- Teoretične osnove omakanja in pranja; Sestava pralnega sredstva; Interakcije tekstilni substrat-umazanija-pralna kopel, voda kot pralni medij; Postopki pranja (gospodinjsko, industrijsko); Napake in poškodbe tekstilij pri pranju;

**Content (Syllabus outline):**

**Lectures:**

- Care labelling of textiles in accordance with valid standard;
- Surfactants (ionic nature, structure, adsorption, micellisation);
- The theoretical basis of wetting and washing; Detergent composition; Textile-soil-washing media interactions; water as a washing medium; Washing processes (industrial, domestic); Faults and damages of textiles after washing;

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <ul style="list-style-type: none"> <li>• Detaširna sredstva in detaširanje; Topila za kemično čiščenje; Postopki profesionalne nege (kemično in mokro čiščenje);</li> <li>• Zaključna dela; Napake in poškodbe tekstilij pri kemičnem in mokrem čiščenju;</li> <li>• Ekološki vidiki nege tekstilij;</li> <li>• Standardi za vrednotenje kakovostne izvedbe postopka nege tekstilij.</li> </ul> <p><b>Seminarsko delo:</b></p> <ul style="list-style-type: none"> <li>• Izvedbeni načrt postopka nege za izbrano tekstilijo, glede na njeno surovinsko sestavo, konstrukcijske parametre, postopek plemenitenja, vrsto umazanih in zahtev higieničnosti tekstilije.</li> <li>• Seminarsko delo se javno prestavi.</li> </ul> <p><b>Laboratorijske vaje:</b></p> <ul style="list-style-type: none"> <li>• Proučevanje vpliva različnih dejavnikov pri odstranjevanju gospodinjskih madežev ali standardnih umazanij s tekstilije s postopkom pranja</li> </ul> | <ul style="list-style-type: none"> <li>• Spotting agents and spotting; Solvents for dry cleaning; Professional cleaning processes (dry cleaning, wet cleaning);</li> <li>• Final work; Faults and damages of the textiles after dry and wet cleaning;</li> <li>• The environmental aspects of textile care;</li> <li>• Textile care standards for the evaluation of quality performed processes.</li> </ul> <p><b>Coursework:</b></p> <ul style="list-style-type: none"> <li>• An implementation plan of textile care process for the selected textiles, with respect to each textile's composition, constructional parameters, finishing process, and the type of soil and hygienic requirements.</li> <li>• Coursework is publicly presented.</li> </ul> <p><b>Laboratory practice:</b></p> <ul style="list-style-type: none"> <li>• A study of the influence of different factors at removal of household stains or standard soils from textiles during the laundering process.</li> </ul> |
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#### Temeljna literatura in viri/Readings:

- SMULDERS, E. et al., Laundry Detergents, Wiley-VCH Verlag GmbH, Weinheim, 2002.
- SOLJACIĆ, I. in PUŠIĆ, T. Njega tekstila Čiščenje u vodenim medijima, Zagreb : Sveučilište u Zagrebu, Tekstilno-tehnološki fakultet, 2005.
- ROSEN, M. J. Surfactants and Interfacial Phenomena, 2nd ed. New York; Singapore : John Wiley & Sons, 1989.
- DATYNER, A. Surfactants in textile processing. New York; Basel : Marcel Dekker, 1983
- ŠOSTAR-TURK, S., in FIJAN, S. Nega tekstilij in oblačil : skripta. Maribor : Fakulteta za strojništvo, 2000.
- ŠOSTAR-TURK, S., FIJAN, S., in ARNUŠ, S. Nega novih tekstilij. Maribor : Fakulteta za strojništvo, 2001 E-Učni moduli, Leonardo da Vinci projekt št. 146 360: <http://www.laundry-sustainability.eu/si/>.
- Izbrani strokovni in znanstveni članki iz periodičnih publikacij, ki so na voljo v knjižnici Oddelka za tekstilstvo ter v elektronskih revijah. / Selected professional and original scientific articles from periodicals, available in the library of the Department of Textiles and in electronic journals.

#### Cilji in kompetence:

##### Cilji:

- Študent osvoji znanje s področja nege tekstilij (pranje in profesionalna nega - kemično in mokro čiščenje), ki so pomembna za kakovostno izvedbo postopka nege.

##### Kompetence:

- Uporaba osnovnih znanj s področja fizikalne kemije površin in površinsko aktivnih snovi;
- Povezovanje znanj s področja vlaken, prednja, tkanja, pletenja in plemenitenja pri načrtovanju postopka nege;
- Poznavanje sestave in vloge pralnih in čistilnih sredstev pri postopku nege;
- Sposobnost načrtovanja postopka nege ter kritična presoja kakovostne izvedbe le-tega;
- Sposobnost hitrega odziva na nove zakonske predpise glede okoljskih zahtev procesov nege;

#### Objectives and competences:

##### Objectives:

- To acquire knowledge in the textile care field (laundering and professional care-dry and wet cleaning) that is important for achieving quality performance in the care process.

##### Competences:

- The ability to use basic skills in the field of physical chemistry of surfaces and surfactants;
- To combine different types of knowledge, i.e., knowledge concerning fibres, spinning, weaving, knitting and finishing when planning the care process;
- To understand the composition and the role of detergents and cleaning agents in the care process;
- The ability to plan the care process and the critical assessment of its quality implementation;

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Sposobnost hitrega odziva na nove postopke in tehnologije nege in njihov prenos v prakso;</li> <li>• Ekološki vidiki nege z vidika trajnosti;</li> <li>• Sposobnost kritičnega presojanja pri preoblikovanju ali vpeljavi novih postopkov nege z vidika zagotavljanja kakovosti postopka nege in higieničnosti tekstilije;</li> <li>• Sposobnost strokovnega svetovanja pri izvajanju sodobnih postopkov nege tekstilij.</li> </ul> | <ul style="list-style-type: none"> <li>• The ability to quickly respond to new legal regulations according to the environmental requirements of care processes;</li> <li>• The ability to quickly respond to new processes and technologies of textile care and then to quickly transfer them into practice;</li> <li>• To understand the ecological aspects of the care process from the perspective of sustainability;</li> <li>• To engage the ability of critical estimation when transforming or introducing a new care process in terms of providing the quality of care process and hygienic textiles;</li> <li>• The ability to provide expert advice when performing state of the art textile care processes.</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Predvideni študijski rezultati:**

Študent pozna klasične in sodobne postopke nege tekstilij ter možnosti njihove uporabe v praksi. Podrobno pozna in razume vlogo sredstev za pranje in profesionalno nego, različne tehnologije strojnega pranja in profesionalne nege z vidika trajnostnega razvoja, ekonomike, ekologije in standardizacije.

#### **Intended learning outcomes:**

- The student will become familiar with conventional and modern processes of textile care and the possibilities of their applications in practical use.
- The student will learn the role of washing, dry cleaning and wet cleaning agents, and various technologies of laundering and professional care in terms of sustainable development, economics, ecology and standardisation.

#### **Metode poučevanja in učenja:**

Predavanje, seminarsko delo, laboratorijske vaje, ekskurzija.

#### **Learning and teaching methods:**

Lectures, coursework, laboratory practices, excursion.

#### **Načini ocenjevanja:**

#### **Delež/Weight**

#### **Assessment:**

|                                    |         |                                        |
|------------------------------------|---------|----------------------------------------|
| Pisni izpit                        | 50,00 % | Written exam                           |
| Pisno poročilo laboratorijskih vaj | 25,00 % | Written report of laboratory practices |
| Seminarsko delo                    | 25,00 % | Coursework                             |

#### **Reference nosilca/Lecturer's references:**

1. DROL, Petra, KERT, Mateja, SIMONČIČ, Barbara, HLADNIK, Aleš. Vrednotenje vpliva različnih dejavnikov pri odstranjevanju standardnih umazanij z bombažnih tkanin z večfaktorsko analizo variance. Tekstilec, ISSN 0351-3386, 2012, letn. 55, št. 3, str. 194-205, ilustr. [COBISS.SI-ID 2785648]
2. KERT, Mateja, SIMONČIČ, Barbara, SOLJACIČ, Ivo, PUŠIĆ, Tanja. Thermodynamic study of interactions between n-dodecyl-β-D-maltoside and dodecyltrimethylammonium bromide. V: 4th international scientific-professional symposium Textile science & economy 26th January 2011, Zagreb, Croatia. PENAVA, Željko (ur.), UJEVIĆ, Darko (ur.). Tekstilna znanost i gospodarstvo : zbornik radova = Textile science & economy : book of proceedings. Zagreb: Sveučilište u Zagrebu, Tekstilno-tehnološki fakultet, 2011, str. 131-134. [COBISS.SI-ID 2510704]
3. KERT, Mateja, SIMONČIČ, Barbara. The influence of nonionic surfactant structure on the thermodynamics of anionic dye-cationic surfactant interactions in ternary mixtures. Dyes and pigments, ISSN 0143-7208. [Print ed.], 2008, vol. 79, no. 1, str. 59-68. [COBISS.SI-ID 1978736]
4. KERT, Mateja. Novosti na področju nege tekstilij - Texcare 2012 = Novelty in field of textile care - Texcare 2012. Tekstilec, ISSN 0351-3386, 2012, letn. 55, št. 3, str. 223-237, ilustr. [COBISS.SI-ID 2785392]

## OBLAČILNA TRADICIJA

**Predmet:** Oblačilna tradicija  
**Course title:** Clothing tradition  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068732

**Koda učne enote na članici/UL Member course code:** 11040

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Alenka Pavko Čuden

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/ Compulsory

**Jeziki/Languages:**

Predavanja/Lectures:

Angleščina, Slovenščina

Vaje/Tutorial:

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

- Izvor in pomen oblačenja, funkcije oblačil, psihologija in sociologija mode, umetnost-oblikovanje-znanost-tehnologija;
- Življenjski stil različnih tržnih segmentov populacije kot izhodišče za oblikovanje kolekcij oblačil in modnih dodatkov;
- Vpliv podobe lepotnega ideala na modo in telo v preteklosti in danes;
- Pomen modne skice, modne ilustracije in tehnične modne skice;
- Osnove likovne teorije kot analiza odnosa med oblačilom in telesom v procesu vizualnega preoblikovanja telesa;

**Content (Syllabus outline):**

- The origin and the meaning of clothing, the function of clothing, the psychology and sociology of fashion and art - design - technology - science;
- The lifestyle of various market segments of the population as a starting point for the creation of collections of clothing and accessories;
- The impact of the image ideal of beauty in fashion and the body in the past and today;
- The importance of fashion sketches, fashion illustrations and technical fashion sketches;

|                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <ul style="list-style-type: none"> <li>• Oblikovanje modnih smernic;</li> <li>• Vpliv izbire osnovnih in pomožnih tekstilij, barv, vzorcev, tekstur, krojev, načinov izdelave detajlov, itd. na oblačilne kolekcije in končni vizualni izgled;</li> <li>• Razumevanje procesa oblikovanja oblačil znotraj oblikovalsko-proizvodnega-prodajnega okolja.</li> </ul> | <ul style="list-style-type: none"> <li>• The basics of art theory to analyse the relationship between clothing and body in the process of visually transforming the body;</li> <li>• Fashion trends;</li> <li>• The impact of the choice of basic and auxiliary textiles, colours, patterns, textures, clothing pattern cuts, methods of sewing and other materials and techniques on clothing collection and its final visual appearance;</li> <li>• Understanding the process of fashion design within the design - production - sales environment.</li> </ul> |
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#### **Temeljna literatura in viri/Readings:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• DAVIS, F. Fashion, Culture and Identity, 1992;</li> <li>• HAUFFE, T. Design: a concise history. London : Laurence King, 1998;</li> <li>• SEELING, C. Fashion/The Century of the Designer, Cologne : Konemann, 2000;</li> <li>• POLHEMUS, T. Streetstyle : from sidewalk to catwalk. London, Thames and Hudson, 1997;</li> <li>• BOUCHER, F. A history of costume in the West. London, Thames and Hudson, 1997;</li> <li>• FRINGS, G. S. Fashion from Concept to Consumer, 2005;</li> <li>• NEWMAN, C. Fashion, National Geographic Society, 2001;</li> <li>• HINES, T., BRUCE, M. Fashion Marketing : Contemporary Issues, Butterworth-Heinemann, 2001;</li> </ul> <p>www.style.com, www.vogue.com</p> |
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#### **Cilji in kompetence:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Cilji:</b></p> <ul style="list-style-type: none"> <li>• Študenti spoznajo in razumejo proces oblikovanja sodobnih oblačilnih kolekcij od končnega uporabnika do prodaje, vpliv lepotnega ideala na modo v preteklosti in danes, nastanek modnih smernic in možnosti vizualnega preoblikovanja telesa s pomočjo osnov likovne teorije.</li> </ul> <p><b>Kompetence:</b></p> <ul style="list-style-type: none"> <li>• Raziskujejo in razvijajo sposobnosti za kreativni tehnološki doprinos v procesu razvoja novih oblačilnih kolekcij.</li> </ul> | <p><b>Objectives and competences:</b></p> <p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>• To learn and understand the process of contemporary fashion design from the consumer to the point of sale, the influence of beauty ideals on fashion trends in the past and today, and the design of fashion trends and the possibility of visual redesign of the real body using the basic elements and principles of design.</li> </ul> <p><b>Competences:</b></p> <ul style="list-style-type: none"> <li>• Researching and developing an aptitude for creative technological input in the process of developing new clothing collections.</li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Predvideni študijski rezultati:**

|                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>• Znanje teorije pomena in vloge oblačil za sodobnega potrošnika;</li> <li>• Znanje in razumevanje oblikovalskega procesa razvoja sodobnih oblačilnih kolekcij;</li> <li>• Znanje in veščine oblikovanja tehničnih modnih skic kolekcij oblačil.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>To build a knowledge and an understanding of the following:</b></p> <ul style="list-style-type: none"> <li>• A theoretical knowledge of the importance and role of clothing for the modern consumer;</li> <li>• A knowledge and an understanding of the design process of the development of modern clothing collections;</li> <li>• Knowledge and skills of technical drawings of fashion clothing collections.</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Metode poučevanja in učenja:**

|                              |                                                                  |
|------------------------------|------------------------------------------------------------------|
| Predavanja, seminarsko delo. | <b>Learning and teaching methods:</b><br>Lectures, seminar work. |
|------------------------------|------------------------------------------------------------------|

#### **Načini ocenjevanja:**

|             |                                |                                    |
|-------------|--------------------------------|------------------------------------|
| Pisni izpit | <b>Delež/Weight</b><br>70,00 % | <b>Assessment:</b><br>Written exam |
|-------------|--------------------------------|------------------------------------|

|                 |         |              |
|-----------------|---------|--------------|
| Seminarsko delo | 30,00 % | Seminar work |
|-----------------|---------|--------------|

**Reference nosilca/Lecturer's references:**

1. PAVKO-ČUDEN, Alenka. Dizajn i tehnologija tekstila - dva suprotstavljena pola?. Tekstil, 1997, let. 46, št. 1, str. 11-15;
2. PAVKO-ČUDEN, Alenka. The future is paved by innovation: unconventional knitted structures. V : Proceedings. International Symposium in Knitting and Apparel - Textiles of the future : ISKA 2013, Faculty of Textiles - Leather and Industrial Management, Iași, Romania, str. 12-15;
3. RANT, Darja, PAVKO-ČUDEN, Alenka. Design of multifunctional weft knitted structures with auxetic potential. V: 17th Tectextil symposium and 7th Avantex symposium, Frankfurt, Germany. Innovations for life. Frankfurt am Main: Messe Frankfurt Exhibition, 2013, str.27;
4. PAVKO-ČUDEN, Alenka. Creative knitwear teaching. Knitting international, 2014, let. 120, št. 6, str. 25-27.

## OSNOVE 3D MODELIRANJA

**Predmet:** Osnove 3D modeliranja  
**Course title:** Basics of 3D modelling  
**Članica nosilka/UL Member:** UL NTF

|                                                       |                       |               |                 |                  |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

**Univerzitetna koda predmeta/University course code:** 0068703

**Koda učne enote na članici/UL Member course code:** 11312

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 15                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Helena Gabrijelčič Tomc

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v študij letnika. Osnovno znanje uporabe računalnika.

**Prerequisites:**

Enrollment in the study year. Basic knowledge of computer use.

**Vsebina:**

- 3D računalniška grafika: razvoj, zgodovina, pomen, pregled uporabe v tekstilni in oblačilni industriji;
- Enostavni in kompleksnejši postopki 3D modeliranja (osnovne transformacije, modeliranje s primitivi, poligonsko modeliranje, modeliranje k krivuljami in NURBS-i, preoblikovalci, subdivizija);
- Pomen topologije za produkcijo;
- Digitalno kiparjenje;
- Postavitev na sceno;
- Teksture in materiali;

**Content (Syllabus outline):**

- 3D computer graphic: development, history, trends, review of implementation in textile and cloth industry;
- Preparing for modelling;
- Fundamentals of 3D modelling (basic transformations, primitives modelling, polygonal modelling, modelling with NURBS, modifiers and deformers, subdivision);
- Topology and production;
- Digital sculpturing;
- Scene setting;
- Textures and materials;

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Mape in teksturiranje (projekcijsko in enostavno UV mapiranje);</li> <li>• Teoretične osnove simulacije svetlobnih interakcij v 3D prostoru;</li> <li>• Teoretično ozadje 3D osvetljevanja;</li> <li>• Virtualna kamera in pomen kompozicije;</li> <li>• Tehnike in algoritmi osnovnih in naprednih upodobljevalnikov;</li> <li>• Osnove modeliranja in simuliranja dinamičnih objektov (toga in mehka telesa, tekstil,...).</li> </ul> | <ul style="list-style-type: none"> <li>• Maps and texturing (projection and simple UV mapping);</li> <li>• Theoretical basis of light interactions in 3D space;</li> <li>• Theoretical background of 3D lighting;</li> <li>• Virtual camera and the composition;</li> <li>• Techniques and algorithms of simple and advanced rendering engines;</li> <li>• Basic techniques of modelling and simulation of dynamic objects (rigid and soft bodies, cloths...).</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Temeljna literatura in viri/Readings:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• ERZETIČ Blaž, GABRIJELČIČ Helena. 3D od točke do upodobitve, 2. izdaja, Pasadena. 2010;</li> <li>• VAUGHAN. William. Digital Modeling. 1st ed. New Riders, Pearson Education. 2012;</li> <li>• BIRN Jeremy. Digital Lighting &amp; Rendering, 3rd ed. New Riders. 2013;</li> <li>• RATNER Peter: 3-D human modeling and animation, 3rd ed. Wiley. 2010;</li> <li>• HUGHES, John et all. Computer Graphics: Principles and Practice. 3rd ed. Addison-Wesley Professional. 2013;</li> <li>• FLOR de la, Mike. Digital Sculpting with Mudbox: Essential Tools and Techniques for Artists. Focal Press. 2010.</li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Cilji in kompetence:**

**Cilj** je seznaniti študenta o pomenu 3D računalniške grafike v grafičnih in interaktivnih komunikacijah in avdio-vizualnih medijih.

#### **Kompetence:**

- Spoznavanje osnovnih in naprednih tehnik in orodij 3D modeliranja s poudarkom na topologiji;
- Kritična presoja določanja osnovnih in kompleksnih tekstur in materialov s zahtevnimi postopki mapiranja;
- Obvladovanje kompozicijskih pravil pri postavitvi scene ter kompleksnih postopkov 3D osvetljevanja s poudarkom na razumevanju simulacij svetlobnih interakcij s 3D materialom;
- Razumevanje metod in delovanja algoritmov za enostavno in napredno upodabljanje.

#### **Objectives and competences:**

**Aim** of the course is understanding the importance of 3D computer graphic in graphic and interactive communication, audio-visual media.

#### **Subject-specific competences:**

- Knowledge of basic and advanced 3d modeling techniques and tools with the emphasis on topology;
- Critical evaluation and design of simple and advanced textures and materials with advanced mapping procedures;
- Management of compositional rules in scene setting and complex procedures of 3D illumination with the emphasis on understanding the interactions between light and 3D material;
- Understanding rendering methods and working of rendering algorithms for simple and advanced rendering.

#### **Predvideni študijski rezultati:**

Študent bo razumel teoretične osnove in obvladal prenos v prakso osnovnih in zahtevnejših tehnik 3D modeliranja (s poudarkom na topologiji), osvetljevalnih sistemov, teksturiranja, postavitve scene, upodabljanja ter osnovnih postopkov priprave modela za 3D animiranje.

#### **Intended learning outcomes:**

Understanding of theoretical basis and practical use of 3D simple and advanced modelling, textures, mapping, virtual illumination, scene setting, rendering and fundamentals of 3D animations.

#### **Metode poučevanja in učenja:**

Predavanja, seminar (samostojno projektno delo), računalniške vaje in vodeno individualno delo.

#### **Learning and teaching methods:**

Lectures, seminar (individual project work), computer exercises and guided individual work.

#### **Načini ocenjevanja:**

#### **Delež/Weight Assessment:**

|                                                |         |                                                               |
|------------------------------------------------|---------|---------------------------------------------------------------|
| Izpit teoretskih znanj in ocena projektne delo | 70,00 % | Exam of theoretical knowledge and evaluation of project work, |
| Ocena iz računalniških vaj                     | 30,00 % | Completed computer tutorials                                  |

**Reference nosilca/Lecturer's references:**

1. ERZETIČ, Blaž, GABRIJELČIČ, Helena. 3D od točke do upodobitve. 1. natis. Ljubljana: Pasadena, 2009. 201 str., ilustr. ISBN 978-961-6361-99-6;
2. BRATUŽ, Nika, JAVORŠEK, Dejana, GABRIJELČIČ TOMC, Helena. Defining optimal conditions of colors in 3D space in dependence on gamma values, illumination, and background color. Journal of imaging science and technology, ISSN 1062-3701, Jul./Aug. 2015, vol. 59, no. 4, str. 40503/1-40503/11;
3. GABRIJELČIČ TOMC, Helena, HLADNIK, Aleš. 1D and 2D Shape Descriptors Applied in Fabric Drape Computer Simulation. Fibres Text. East. Eur., 2015; vol. 23, no. 6(114), str. 92-101;
4. KOČEVAR, Tanja Nuša, GABRIJELČIČ TOMC, Tomc. Primerjava 3D simulacij tekstilij z oceno uporabe dveh aplikacij in slikovno analizo upodobitev = Comparison of 3D Textile Simulations with Evaluation of Usability of Two Applications and Image Analysis of Renderings. Tekstilec, 2013, vol. 56, no.4, str. 323–334;
5. VIDMAR, Žan, HLADNIK, Aleš, GABRIJELČIČ TOMC, Helena. Performance assessment of three rendering engines in 3D computer graphics software. Acta graphica, ISSN 0353-4707. [Print ed.], 2014, vol. 25, no. 3/4, str. 101-114.

# PODJETNIŠTVO

**Predmet:** Podjetništvo  
**Course title:** Entrepreneurship  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068705

**Koda učne enote na članici/UL Member course code:** 10246

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Blaž Zupan

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Študent oz. kandidat mora imeti predmet opredeljen kot študijsko obveznost.

**Prerequisites:**

The course must be assigned to the student.

**Vsebina:**

Študenti bodo v okviru predmeta spoznali:

- Pomen podjetništva v gospodarstvu in temeljne pojme podjetništva;
- Prepoznavanje poslovnih priložnosti;
- Pet korakov razvoja novih izdelkov in storitev – opazovanje, brainstorming, hitro prototipiranje, izboljšanje prototipov in implementacija rešitve;
- Dizajnerski način razmišljanja – tehnični, poslovni, človeški vidik;
- Praktična aplikacija metode razvoja novih izdelkov in dizajnerskega procesa;
- Osnove računovodstva in financiranja;

**Content (Syllabus outline):**

Students will learn:

- Entrepreneurship and its role in socio-economic development;
- Recognition of business opportunities;
- Five steps of the product/service development process: observation, brainstorming, rapid prototyping, testing and refinement and implementation;
- Design thinking: desirability, feasibility and viability of new solutions;
- Practical application of new product development methodologies and design thinking;

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| <ul style="list-style-type: none"> <li>• Poslovno načrtovanje, vsebino in način izdelave poslovnega načrta; politiko spodbujanja podjetništva države; pomen in vsebino marketinške/prodajne funkcije v podjetju, metode raziskovanja trga, porabnikov, konkurence, poslovno komunikacijo.</li> </ul> | <ul style="list-style-type: none"> <li>• Basics of accounting and financing;</li> <li>• Business planning, content and the development of a business plan; governmental policies to promote entrepreneurship; importance and definition of the marketing/ sales at a company; market, customer and competition research methods; business communication.</li> </ul> |
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#### Temeljna literatura in viri/Readings:

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| <ul style="list-style-type: none"> <li>• VAHČIČ, A., PRODAN, I. in ostali: D.SCHOOL RAZVOJ NOVIH PRODUKTOV IN STORITEV - Od interdisciplinarnosti in dizajnerskega način razmišljanja do uspeha na trgu, 2008.</li> <li>• KELLEY, T. The Ten Faces of Innovation: IDEO's Strategies for Defeating the Devil's Advocate and Driving Creativity Throughout Your Organization.</li> <li>• KELLEY, T. et al: The Art of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm. -</li> <li>• Lean Startup, The Startup Owner's Manual (najnovejša izdaja bo predstavljena med predmetom/latest edition will be presented during the course).</li> <li>• Dodatna aktualna gradiva, objavljena na spletni strani predmeta./Additional current materials are published on the course website.</li> <li>• ANTONČIČ, B., HISRIC, R., PETRIN, T. and VAHČIČ, A., Podjetništvo, Založba GV, Ljubljana, 2002, pp. 485.</li> </ul> |
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#### Cilji in kompetence:

**Cilj predmeta** je študentom razviti sposobnost timskega dela, prevzemanja odgovornosti in samoiniciativnega delovanja pri reševanju človeških, tehničnih in ekonomskih problemov povezanih z razvojem novih produktov in storitev. Študentje z uporabo dizajnerskega pristopa in hitrega prototipiranja izdelajo delujoč prototip rešitve podj. problema.

Študentje si pri predmetu pridobijo naslednje

##### specifične kompetence:

- Prepoznati in oceniti priložnosti; uravnavati tveganje;
- Učinkovito komunicirati; vztrajati; ustvarjalno rešiti problem; učinkovito rabiti vire;
- Delovati gverilsko;
- Ustvarjati vrednost;
- Ohranjati fokus; prilagajati se; biti samoučinkovit; se mrežiti;
- Sprejemati odločitve; sklepati posle in se pogajati.

#### Objectives and competences:

**The objective of the course** is to develop skills such as teamwork, responsibility, self-initiative, and the ability to solve any societal, technical or business problem associated with the development of new products and services.

Student will use design thinking and rapid prototyping to produce a working prototype as a solution to a given entrepreneurial problem.

##### Student acquires the following specific competencies:

- Opportunity recognition and assessment; risk management;
- Effective communication; perseverance; innovative thinking, creative problem solving; efficient use of resources;
- Guerrilla skills;
- Creating value;
- Maintaining focus; resilience; self-efficacy; networking;
- Decision making; deal making and negotiation.

#### Predvideni študijski rezultati:

**Znanje in razumevanje:** študent bo spoznal in razumel:

- Pojme s področja podjetništva in gospodarstva, organizacije dela, vodenja projektov, marketinga;
- Osnovne zakonitosti kreativnega razvoja novih izdelkov in storitev ter podjetniške dejavnosti s poudarkom na primerih iz prakse kakor tudi iz študentovih življenjskih potreb ter izkušenj;
- Skozi dizajnerski način razmišljanja in s pomočjo d.school metodologije študent reši konkreten poslovni ali življenjski problem in osvoji znanje,

#### Intended learning outcomes:

**Knowledge and comprehension:** študent will recognise and understand:

- Concepts in the field of entrepreneurship and the economy as a whole, management, project management, marketing;
- The basic principles of the creative development of new products and services, and entrepreneurial activities, with an emphasis on cases from practical experience, and from the student's needs and life experiences;

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| ki ga lahko replicira v profesionalnem in osebnem življenju; <ul style="list-style-type: none"> <li>• Prepoznavanje podjetniških priložnosti, analiza podatkov in informacij za sprejemanje poslovnih odločitev, izdelava prototipov, antropološke in etnografske metode spremljanja potrošnikov, izpeljava rešitve problema;</li> <li>• Dokumentacija procesa z multimedijskimi metodami, samostojna priprava finančnih in poslovnih analiz.</li> </ul> | <ul style="list-style-type: none"> <li>• Through a design thinking methodology, student solves a specific business or social problem, and acquires knowledge that can be replicated in their professional and personal life;</li> <li>• Identification of business opportunities, analysis of data and information for business decision-making, prototyping, anthropological and ethnographic methods of customer analysis, and the implementation of a solution to a specific problem;</li> <li>• Documentation of the process using multimedia and the independent preparation of financial and business analyses (marketing, sales, etc.).</li> </ul> |
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| <b>Metode poučevanja in učenja:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Learning and teaching methods:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>• Predavanja s pomočjo različnih AV sredstev;</li> <li>• Delo na konkretnem projektu, aktualnem problemu;</li> <li>• Predstavitve sprotnega dela, poročilo in komentarji s strani mentorjev in študentov;</li> <li>• Uporaba multimedijske tehnologije za spremljanje napredka, Internet, video;</li> <li>• Aktivno mentorstvo s strani pedagogov, asistentov, praktikov - podjetnikov;</li> <li>• Terensko delo – analiza trga, testiranje prototipov, uporaba rešitve problema, praktične vaje d.school metodologije.</li> </ul> | <ul style="list-style-type: none"> <li>• Lectures using audio-visual technology.</li> <li>• Work on a specific project in the form of a real business or social problem.</li> <li>• Ongoing work will be presented regularly, with feedback given by mentors and students.</li> <li>• The use of multimedia (Internet, video, etc.) to monitor progress.</li> <li>• Active mentoring will be provided by teachers, assistants, practitioners-entrepreneurs.</li> <li>• Fieldwork: market analysis, prototype testing, application of a solution to a problem, and practical exercises using the design thinking methodology.</li> </ul> |

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| <b>Načini ocenjevanja:</b>                               | <b>Delež/Weight</b> | <b>Assessment:</b>                                   |
| Projektna naloga in vmesna poročila, končna predstavitev | 60,00 %             | Project work, interim reports and final presentation |
| Domače naloge, sodelovanje                               | 20,00 %             | Homework and active participation                    |
| Izpit pisni in/ali ustni                                 | 20,00 %             | Written and/or oral examination                      |

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| <b>Reference nosilca/Lecturer's references:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <ol style="list-style-type: none"> <li>1. ZUPAN, Blaž, STRITAR, Rok, SLAVEC GOMEZEL, Alenka. Unlocking latent creativity with rapid prototyping = Spodbujanje latentne ustvarjalnosti s hitrim prototipiranjem. Traditiones : zbornik Inštituta za slovensko narodopisje, ISSN 0352-0447, 2017, vol. 46, no. 1/2, str. 183-187, doi: 10.3986/Traditio2017460204.</li> <li>2. LIKAR, Borut, CANKAR, Franc, ZUPAN, Blaž. Educational model for promoting creativity and innovation in primary schools. Systems research and behavioral science : the official journal of the International Federation for Systems Research, ISSN 1092-7026, Mar./Apr. 2015, vol. 32, iss. 2, str. 205-213, doi: 10.1002/sres.2261.</li> <li>3. ZUPAN, Blaž, SVETINA NABERGOJ, Anja. Razvoj podjetniških kompetenc s pomočjo dizajnerskega pristopa. Economic and business review, ISSN 1580-0466. [Tiskana izd.], 2014, vol. 16, posebna št., str. 49-74, ilustr.</li> <li>4. CANKAR, Franc, DEUTSCH, Tomi, ZUPAN, Blaž, SETNIKAR-CANKAR, Stanka. Schools and promotion of innovation = Škole i promicanje inovacije. Hrvatski časopis za odgoj i obrazovanje : [CJE], ISSN 1848-5189. [Tiskana izd.], 2013, vol. 15, sp. ed. no. 2, str. 179-211. [COBISS.SI-ID 4164782],</li> <li>5. VADNJAL, Jaka, ZUPAN, Blaž. Family business as a career opportunity for women. South East European journal of economics and business, ISSN 1840-118X, Nov. 2011, vol. 6, no. 2, str. 27-36, tabele. [COBISS.SI-ID 513010818],</li> <li>6. VADNJAL, Jaka, ZUPAN, Blaž. The role of women in family businesses. Economic and business review, ISSN 1580-0466. [Tiskana izd.], June 2009, vol. 11, no. 2, str. 159-177, tabele. [COBISS.SI-ID 18637798]</li> </ol> |

## PREISKAVE TEKSTILIJ

**Predmet:** Preiskave tekstilij  
**Course title:** Testing of textiles  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev)      **Študijska smer**      **Letnik**      **Semestri**      **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068740

**Koda učne enote na članici/UL Member course code:** 10057

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 30                 | 0                                       | 15                                                  | 90                                                | 6    |

**Nosilec predmeta/Lecturer:** Andrej Demšar

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
 Za pristop h končnemu izpitu je pogoj opravljen seminar, opravljena predstavitev seminarja in pozitivno ocenjen kolokvij iz laboratorijskih vaj.

**Prerequisites:**

Enrolment into study year.  
 The prerequisite for applying to the final exam is passed seminar, a presentation of self-study and a positively assessed colloquium in laboratory exercises.

**Vsebina:**

**Predavanja:**

- Pomen in uporaba preiskav v tekstilstvu;
- Standardi in njihova uporaba, vzorčenje, merjenje in vrednotenje meritev, tekstilije in vlaga;
- Preiskave vlaken – določanje dolžine, dolžinske mase, kodravosti in natezne trdnosti, zrelosti bombaža;
- Označevanje in številčenje prej, preiskave prej – določanje dolžinske mase, vitja, trenja, voluminoznosti, enakomernosti;

**Content (Syllabus outline):**

**Lectures:**

- Meaning and use of textile testing;
- Standards and their application, sampling, measurements and evaluation of measurements, textiles and moisture;
- Fiber testing - determination of length, linear density, curling and tensile strength, maturity of cotton;

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| <ul style="list-style-type: none"> <li>• Osnovne preiskav ploskih tekstilij – določanje dimenzij, trdnosti, prepustnosti in vpojnosti, in lastnosti povezane z udobnostjo in uporabnostjo tekstilij in oblačil – določanje obrabljivosti, pilinga, togosti, mečkljivosti, leska, barvnih obstojnosti;</li> <li>• Obnašanje tekstilij pod vplivom natezne sile, določanje elastičnih in viskoelastičnih lastnosti, elastične povratnosti;</li> <li>• Dimenzijska stabilnost in označevanje tekstilnih izdelkov.</li> </ul> <p><b>Vodeno samostojno učenje:</b></p> <ul style="list-style-type: none"> <li>• Na podlagi člankov in druge literature študent poglobljeno predela in predstavi del učne snovi.</li> </ul> <p><b>Seminar:</b></p> <ul style="list-style-type: none"> <li>• Predstavitev določanja neke lastnosti tekstilije z uporabo standardizirane metode.</li> </ul> <p><b>Vaje:</b></p> <ul style="list-style-type: none"> <li>• Merjenje lastnosti tekstilij – dolžina, dolžinska masa in pretržne lastnosti vlaken, zavoji, enakomernost, dolžinska masa prej, natezne lastnosti prej, natezna, trgalna, razpočna in pregibna trdnost tkanin in pletiv, zračna prepustnost, prepustnost vodne pare, in toplotna prevodnost tkanin, gorljivost zaves, obstojnost na drgnjenje dekorativnih tkanin, obstojnost na piling, elektrostatičnost tkanin.</li> </ul> | <ul style="list-style-type: none"> <li>• Yarn labeling and numeration, yarn testing - determining linear density, twist, friction, voluminosity, evenness;</li> <li>• Basic investigation of planar textiles - determination of dimensions, strength, permeability and absorption and properties related to the comfort and usability of textiles and clothing - determination of wear, piling, rigidity, softness, luster, colorfastness;</li> <li>• Behavior of textiles under the influence of tensile force, determination of elastic and viscoelastic properties, elastic recovery;</li> <li>• Dimensional stability and labeling of textile products.</li> </ul> <p><b>Guided Self-Learning:</b></p> <ul style="list-style-type: none"> <li>• On the basis of published articles and other literature, the student studies and presents a part of the teaching material.</li> </ul> <p><b>Seminar:</b></p> <ul style="list-style-type: none"> <li>• Presentation of testing a selected properties of a textile material using a standardized method.</li> </ul> <p><b>Exercises:</b></p> <ul style="list-style-type: none"> <li>• Measuring textile properties - length, linear density and breaking properties of fibers, twist, uniformity, thickness formerly, tensile properties before, tensile, tearing, bursting and flexural woven and knitted fabrics' strength, air permeability, water vapor permeability and thermal conductivity of fabrics, flammability of curtains, wearing resistance of interior fabrics, pilling resistance, electrostaticity of fabrics.</li> </ul> |
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#### Temeljna literatura in viri/Readings:

- SOMMER, W. Handbuch der Verktstoffpruffungen. Berlin : Springer Verlag, 1960;
- MORTON, W.E. & HEARLE, J.W.S. Physical properties of textile fibres. Manchester : The Textile Institute, 1997;
- COLLIER, B.J. & EPPS, H.H. Textile testing and analysis. Upper Saddle River : Merrill, 1999;
- SAVILLE, B. P. Physical testing of textiles. Cambridge : Woodhead publishing Ltd and The Textile Institute, 2000;
- Standardi - SIST, ISO, DIN, ASTM.
- GREGOR-SVETEC, D. Preiskave tekstilij: zapiski predavanj. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2005;
- DEMŠAR, A., RIJAVEC, T., SLUGA, F. Tekstilne preiskave : navodila k vajam. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2002;
- GREGOR-SVETEC, D. Temeljne preiskave tekstilij. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2010.
- Strokovne revije / Professional magazines: Tekstilec, Tekstil Literatura je dostopna v knjižnici Oddelka za tekstilstvo za izposajo.

Literatura, pri kateri je založnik Oddelek za tekstilstvo, se na oddelku lahko kupi. / Literature is available in the Department of Textiles. The literature for which the publisher is the Department of Textile, can be purchased at the department.

#### Cilji in kompetence:

Cilji:

#### Objectives and competences:

Objectives:

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| <ul style="list-style-type: none"> <li>• Študenti se seznaniijo z osnovnimi fizikalnimi in kemičnimi tekstilno tehnološkimi metodami preskušanja tekstilij ter obenem spoznajo lastnosti tekstilij od vlaken do končnih izdelkov.</li> <li>• Seznanijo se z osnovnimi metodami tekstilnih preiskav, standardizacijo in pomenom tekstilnih preiskav pri oceni kakovosti surovine in končnega izdelka ter spremljanju in optimiranju tehnoloških postopkov izdelave tekstilij.</li> </ul> <p><b>Predmetnospecifične kompetence:</b></p> <ul style="list-style-type: none"> <li>• Poznavanje in razumevanje utemeljitve in razvoja tekstilne stroke na podlagi poznavanja razvoja preiskovalnih metod ter izpopolnjevanja kontrole tehnoloških postopkov izdelave tekstilij;</li> <li>• Sposobnost za reševanje konkretnih delovnih problemov na podlagi poznavanja heterogenosti tekstilnih materialov in njihovih lastnosti z obvladovanjem določanja lastnosti tekstilij;</li> <li>• Sposobnost povezovanja znanja z različnih področij in aplikacij na podlagi opredelitve lastnosti vlaken in iz njih izdelanih izdelkov z uporabo različnih metod preiskav;</li> <li>• Sposobnost povezovanja znanja z različnih področij in aplikacij kar vodi do optimiranja postopkov izdelave tekstilij in doseganje večje kakovosti končnih izdelkov;</li> <li>• Razumevanje splošne strukture tekstilne stroke ter povezanosti med njenimi poddisciplinami je povezano s poznavanjem lastnosti tekstilij in njihovo karakterizacijo, sposobnostjo interpretacije rezultatov analize;</li> <li>• Razumevanje in uporaba standardiziranih preskuševalnih metod pri karakterizaciji surovin, tekstilnih polizdelkov in končnih izdelkov;</li> <li>• Razumevanje uporabe statističnega vrednotenja meritev in rezultatov tekstilnih preiskav;</li> <li>• Razvoj veščin in spretnosti pri kontroli in analiziranju sodobnih zahtev izdelave tekstilij in karakterizaciji tekstilnih izdelkov;</li> <li>• Uporaba informacijsko-komunikacijske tehnologije in sistemov pri karakterizaciji tekstilij.</li> </ul> | <ul style="list-style-type: none"> <li>• Students learn about the basic physical and chemical textile testing methods and at the same time learn about the properties of textiles from fibers to finished products.</li> <li>• They are acquainted with the basic methods of textile testing, standardization and the importance of textile tests in the assessment of the quality of the raw material and the finished product, as well as the monitoring and optimization of the technological processes of textile production.</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• Knowing and understanding the justification and development of the textile profession on the basis of mastering the development of testing methods and the upgrading of technological processes of textile production control;</li> <li>• Ability to solve actual work problems based on knowledge of the heterogeneity of textile materials and their properties by mastering the determination of the textile properties;</li> <li>• Ability to integrate knowledge from different fields and applications based on defining the properties of fibers and products manufactured using different testing methods;</li> <li>• The ability to integrate knowledge from different fields and applications leads to the optimization of textile manufacturing processes and the achievement of a higher quality of finished products;</li> <li>• Understanding of the general structure of the textile profession and the connection between its subdisciplines is related to the knowledge of the textile properties and their characterization, the ability to interpret the results of the analysis;</li> <li>• Understanding and using standardized testing methods in the characterization of raw materials, textile semi-finished products and finished products;</li> <li>• Understanding the use of statistical evaluation of measurements and the results of textile investigations;</li> <li>• Development of skills and competences in controlling and analyzing the modern requirements of textile production and the characterization of textile products;</li> <li>• Use of information-communication technology and systems in the characterization of textiles.</li> </ul> |
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| <p><b>Predvideni študijski rezultati:</b></p> <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>• Študent pozna pomen in uporabo tekstilnih preiskav, zna razložiti in uporabiti standard, pozna vpliv vlage na lastnosti tekstilij, pozna posamezne metode določanja lastnosti vlaken, prej in ploskovnih tekstilij ter oblačil, pozna prednosti in pomanjkljivosti posameznih metod preskušanja, zna izvesti meritev po danem postopku preskušanja, ve vrednotiti rezultate</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>Knowledge and understanding:</b></p> <ul style="list-style-type: none"> <li>• The student knows the meaning and the use of textile tests, he can explain and apply the standard, he knows the influence of moisture on the properties of textiles, he knows the individual methods of determining the properties of fibers, flat textiles and clothes, he knows the advantages and disadvantages of individual testing methods, he can carry out the measurements after a given</li> </ul> |
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| <p>meritev in jih podati, pozna vrste poškodb in metode njihovega določanja, ve, kako se označujejo tekstilije;</p> <ul style="list-style-type: none"> <li>Razume pojme povezane z lastnostmi tekstilij in njihovim določanjem, razume zakonitosti posameznih metod preskušanja in delovanje merilnih naprav, razume relacije med posameznimi lastnostmi tekstilij in njihovimi metodami preskušanja, razume relacije med metodami preskušanja, razume vsebino standarda.</li> </ul> <p><b>Uporaba:</b></p> <ul style="list-style-type: none"> <li>Zna uporabiti najprimernejšo metodo preskušanja v konkretnem primeru, zna najti in uporabiti standard pri preskušanju tekstilij, zna na podlagi rezultatov preskušanj podati oceno izdelka, zna rešiti reklamacijo.</li> </ul> | <p>test procedure, evaluate the results of the measurements and provide them, he knows the types of damage and the methods of determining them, he knows how to label textiles;</p> <ul style="list-style-type: none"> <li>He understands the concepts related to the properties of textiles and their determination, he understands the legality of individual testing methods and the operation of measuring devices, he understands the relationship between the individual properties of textiles and their methods of testing, he understands the relationships between the methods of testing, he understands the content of the standard.</li> </ul> <p><b>Application:</b></p> <ul style="list-style-type: none"> <li>He can use the most appropriate testing method in the actual case, he knows how to find and apply the standard for testing textiles, he knows how to evaluate the product based on the results of the tests.</li> </ul> |
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#### Metode poučevanja in učenja:

Interaktivna predavanja, seminar s predstavitvijo, aktivno sodelovanje pri predstavitev seminarjev, interaktivna ali panelna predstavitev vodenega samostojnega dela, samostojno laboratorijsko delo, strokovne ekskurzije, zbiranje literature in študij literature v knjižnici.

#### Learning and teaching methods:

Interactive lectures, seminar with presentation, active participation in presentations of seminars, interactive or panel presentation of guided individual work, independent laboratory work, professional excursions, collection of literature and literature studies in the library.

#### Načini ocenjevanja:

Ustni/pisni izpit, kolokvij iz laboratorijskih vaj, poročilo o opravljenih laboratorijskih vajah, predstavitev samostojnega učenja.

#### Delež/Weight

100,00 %

#### Assessment:

Oral/written examination, colloquium from laboratory exercises, report on laboratory exercises, presentation of self-study

#### Reference nosilca/Lecturer's references:

- ŠEHIĆ, Alisa, VASILJEVIĆ, Jelena, JORDANOV, Igor, DEMŠAR, Andrej, MEDVED, Jože, JERMAN, Ivan, ČOLOVIĆ, Marija, HEWITT, Fiona, HULL, T. Richard, SIMONČIĆ, Barbara. Influence of N-, P- and Si-based flame retardant mixtures on flammability, thermal behavior and mechanical properties of PA6 composite fibers. *Fibers and polymers*, ISSN 1229-9197, 2018, vol. 18, no. 6, str. 1194-1206.
- KADOGLU, Hüseyin, DIMITROVSKI, Krste, MARMARALI, Arzu, ÇELİK, Pinar, BAŞAL BAYRAKTAR, Güldemet, UTE, Tuba Badez, ERTEKIN, Gözde, DEMŠAR, Andrej, KOSTAJNŠEK, Klara. Investigation of the characteristics of elasticised woven fabric by using PBT filament yarns. *AUTEX research journal*, ISSN 1470-9589. [Print ed.], 2016, vol. 16, no. 2, str. 109-117.
- ŠEHIĆ, Alisa, JORDANOV, Igor, DEMŠAR, Andrej, VASILJEVIĆ, Jelena, BUKOŠEK, Vili, NAGLIČ, Iztok, MEDVED, Jože, SIMONČIĆ, Barbara. Influence of flame retardant additive on thermal behaviour and stability of fibre-forming polyamide 6. *Tekstilec : glasilo slovenskih tekstilcev*, ISSN 0351-3386. [Tiskana izd.], 2016, vol. 59, no. 2, str. 149-155.
- BRODA, Jan, SLUSARCZYK, Czeslaw, FABIA, Janusz, DEMŠAR, Andrej. Formation and properties of polypropylene/stearic acid composite fibers. *Textile research journal*, ISSN 0040-5175, 2016, vol. 86, no. 1, str. 64-71.
- KAVKLER, Katja, DEMŠAR, Andrej. Application of FTIR and Raman spectroscopy to qualitative analysis of structural changes in cellulosic fibres = Uporaba FTIR in ramanske spektroskopije pri kvalitativni analizi strukturnih sprememb celuloznih vlaken. *Tekstilec*, ISSN 0351-3386, 2012, letn. 55, št. 1, str. 19-44, ilustr. [COBISS.SI-ID 2727792].

# PSIHOLOGIJA KOMUNIKACIJE IN TRŽENJA

|                                   |                                        |
|-----------------------------------|----------------------------------------|
| <b>Predmet:</b>                   | Psihologija komunikacije in trženja    |
| <b>Course title:</b>              | Communication and marketing psychology |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                 |

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

|                                                            |         |
|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0108511 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 10251   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 0                  | 0                                       | 15                                                  | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** prof. dr. Matija Svetina

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v ustrezen letnik študija.

**Prerequisites:**

Acceptance to the programme.

**Vsebina:**

- Temeljni duševni mehanizmi njihov razvoj: fiziološke osnove zaznavanja, organizacija zaznav, zaznavanje barv in globine, pozornost, spomin in spominske tehnike, kognitivni in čustveni procesi, učenje, ustvarjalnost, soočanje s stresom, osebnostne lastnosti, temperament, sposobnosti, stališča, motivacija, razvojni procesi, uporaba, prepoznavna in ocenjevanje temeljnih psihičnih veličin;
- Uporaba psiholoških znanj v življenjskem in delovnem okolju: komunikacija v razvojnopsihološkem kontekstu, medosebna komunikacija, pogajalske tehnike in spretnosti,

**Content (Syllabus outline):**

- The basic psychological mechanisms and their development: physiological basis for perception, organisation of perceptions, perception of colour, depth, attentions, memory, and memory techniques, cognitive and emotional processes, learning, creativity, coping with stress, personal characteristics, temperament, abilities, attitudes, motivations, developmental processes, use, recognition, and assessment of the basic psychological quantities;
- The use of psychological knowledge in life- and working-related context: communication in the different developmental periods and social

|                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>psihologija skupin, skupinska kultura, ravnopsihološke značilnosti in socialne vloge, razvoj nezdravih komunikacijskih vzorcev, timsko delo, razvoj skupinske dinamike, razvoj komunikacijskih spretnosti, razvoj poklicnih kompetenc.</p> | <p>contexts, negotiation skills, psychology of groups, group-related culture, developmental characteristics and social roles, the development of pathological communication patterns, team work the development of a group dynamics, the development of communication skills, the development of work-related competences.</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Temeljna literatura in viri/Readings:

- ARGYLE, M. The Psychology of Interpersonal Behaviour. London : Penguin Books;
- MAYER, J. (ur.) Skrivnost ustvarjalnega tima. Ljubljana : Dedalus, 2001;
- MOŽINA, S. Poslovno komuniciranje. Maribor : Obzorja, 1998;
- SVETINA, M. Zakaj se tako obnašamo: osnove psihologije. Ljubljana : NTF, Oddelek za tekstilstvo, 2008.

### Cilji in kompetence:

#### Cilji:

- Seznanitev z osnovnimi znanji o zakonitostih duševnih procesov (npr. pozornost, zaznavanje, spomin, učenje, motivacija, čustvovanje, mišljenje) in osnovami strukture osebnosti (npr. temperament, osebnostne lastnosti, sposobnosti);
- Nadgradnja osnovnih znanj s praktičnimi spretnostmi in tehnikami uporabe psiholoških mehanizmov v življenjskem in delovnem okolju, spoznavanje tehnik ustvarjalnosti, spoprijemanja s stresom, asertivnosti.

#### Kompetence:

- Razvoj občutljivosti za vprašanja lastnih zaznavnih, miselnih, čustvenih in motivacijskih procesov ter mehanizmov;
- Analiza psiholoških dejavnikov pri kreativnem delu;
- Analiza in razvoj funkcionalne uporabe tehnik učinkovite komunikacije, timskega dela, vodenja, ustvarjalnega mišljenja, razvoj specifičnih delovnih kompetenc.

### Objectives and competences:

#### Aims:

- Acquaintance with basic knowledge about both psychological processes (e.g. attention, perception, memory, learning, motivation, emotions, and cognition), and structure (e. g. temperament, personal characteristics, abilities);
- Upgrade of the basic knowledge with practical skills and techniques of how to use psychological mechanisms in life- and working environment, learning the techniques of creativity, coping with stress, and assertiveness.

#### Competences:

- The development of sensitivity for the problems of perceptual, cognitive, emotional, and motivational processes and mechanisms;
- The analysis of psychological factors in the creative work;
- Analysis and development of functional use of techniques regarding interpersonal communication, team work, leadership, and creative thinking; the development of specific work-related competences.

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Študentje poznajo in razumejo osnovne mehanizme duševnih procesov in struktur (npr. zaznavanja, mišljenja, čustvovanja, motivacije), kot tudi njihovih razvojnih zakonitosti;
- Poznajo in razumejo glavne mehanizme, zakonitosti in teorije medosebne komunikacije, dela v skupini, vodenja, tehnike ustvarjalnega mišljenja in spoprijemanja s stresom, ter znajo nekatere od teh tehnik uporabiti v konkretnih situacijah in različnih razvojnih in socialnih kontekstih.

### Intended learning outcomes:

#### Knowledge and understanding:

- Students learn about most basic psychological mechanisms and structures (e. g. perception, cognition, emotions, motivation), as well as their developmental principles;
- They learn about mechanisms and theories of interpersonal communication, group work, leadership, techniques of creativity, coping with stress and are able to use these techniques in different social and developmental contexts.

### Metode poučevanja in učenja:

Predavanja, seminar, delavnice.

### Learning and teaching methods:

Lectures, seminar, and coursework.

| <b>Načini ocenjevanja:</b>                 | <b>Delež/Weight</b> | <b>Assessment:</b>                  |
|--------------------------------------------|---------------------|-------------------------------------|
| Pisni izpit, izdelki z delavnic in projekt | 100,00 %            | Examination, coursework and project |

**Reference nosilca/Lecturer's references:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>SVETINA, Matija. Resilience in the context of Erikson's theory of human development. Current psychology, ISSN 1046-1310, Sep. 2014, vol. 33, iss. 3, str. 393-404;</li> <li>SVETINA, Matija, ZUPANČIČ, Maja. Strategija upravljanja z življenjem v odraslosti : prečna študija v Sloveniji. Psihološka obzorja, ISSN 1318-1874. [Tiskana izd.], 2007, letn. 16, št. 4, str. 43-63;</li> <li>SVETINA, Matija. Intraindividualna variabilnost kot dejavnik učenja. Psihološka obzorja, ISSN 1318-1874. [Tiskana izd.], 2004, letn. 13, št. 1, str. 29-41;</li> <li>SVETINA, Matija. Zakaj se tako obnašamo? : osnove psihologije. 1. izd. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2008;</li> <li>SVETINA, Matija, ZABRET, Erika, BAJEC, Boštjan. Perception of family functioning : parental vs. non-parental perspective. Suvremena psihologija, ISSN 1331-9264, 2011, vol. 14, br. 1, str. 5-15</li> </ol> |
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# RAČUNALNIŠKI SISTEMI V KONFEKCIJI

|                                   |                                           |
|-----------------------------------|-------------------------------------------|
| <b>Predmet:</b>                   | Računalniški sistemi v konfekciji         |
| <b>Course title:</b>              | Computer systems in apparel manufacturing |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                    |

|                                                       |                       |               |                 |                  |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

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|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0068706 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 10252   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Matejka Bizjak

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija in izbira predmeta.

**Prerequisites:**

Enrolment into study year and course selection.

**Vsebina:**

**Predavanja:**

- Razvoj na področju računalniško vodenih sistemov namenjenih proizvodnji in trženju oblačil, pomen uporabe, področja uporabe;
- CAD/CAM sistemi, računalniško integrirana proizvodnja v konf. industriji;
- Programski paketi za konstrukcijo, izdelavo krojnih slik, izdelavo podporne tehnološke dokumentacije, 3D vizualizacija;
- Povezovanje CAD sistemov za konstrukcijsko in tehnološko pripravo s CAM sistemi v proizvodnji oblačil.
- 

**Content (Syllabus outline):**

**Lectures:**

- Development in the field of computerized systems for the production and marketing in apparel manufacturing, meaning and aims of use;
- CAD / CAM systems, computer integrated manufacturing in apparel industry;
- Software packages for the design, development of patterns, markers, lay planning, technical support documentation, 3D visualization;
- Integration of CAD systems for design and technological preparation with CAM systems in the manufacturing process.

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| <b>Vaje:</b> <ul style="list-style-type: none"> <li>• Uporaba računalniškega sistema Optitex;</li> <li>• Računalniško podprta konstrukcija osnovnih krojev in spoznavanje funkcij, izdelava krojne slike, uporaba 3D modula za virtualno simulacijo izdelkov.</li> </ul> <b>Strokovne ekskurzije:</b> <ul style="list-style-type: none"> <li>• Uporaba CAD/CAM sistemov v konfekcijski industriji.</li> </ul> | <b>Tutorial:</b> <ul style="list-style-type: none"> <li>• Use of CAD system Optitex;</li> <li>• Computer assisted development of basic patterns and learning tools, marker planning and lay planning, 3D module for virtual prototyping.</li> </ul> <b>Excursions:</b> <ul style="list-style-type: none"> <li>• Use of CAD / CAM systems in clothing industry.</li> </ul> |
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#### **Temeljna literatura in viri/Readings:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• BEAZLEY, A., in BOND, T. Computer-Aided Pattern Design and Product Development. Malden : Blackwell Publishing, 2003;</li> <li>• GRAY, S. CAD/CAM in Clothing and Textiles. London : Gower Publishing, 1998;</li> <li>• ROGALE, D., in POLANOVIĆ, S. Računalni sustavi konstrukcijske priprave u odjevnoj industriji. Zagreb : Tekstilno-tehnološki fakultet, 1996; Navodila za uporabo CAD sistema Optitex / nstructions for using the Optitex CAD system. Prosojnice predavanj / Lectures' presentation slides.</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Cilji in kompetence:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <ul style="list-style-type: none"> <li>• Spoznavanje CAD/CAM sistemov v konfekcijski industriji, ki se uporabljajo pri pripravi proizvodnje, za vodenje proizvodnje, 2D in 3D predstavitve konstrukcij, krojnih delov ter izdelkov konfekcijske industrije, ki so namenjeni komunikaciji med oblikovalci, proizvajalci, prodajalci in kupci;</li> <li>• Poznavanje osnovnih zmožnosti programskih paketov za konstrukcijsko in tehnološko pripravo proizvodnje, ter specialnih paketov namenjenih individualnim naročilom, poznavanje programskih paketov za 3D vizualizacijo; Uporaba CAD sistema Optitex.</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Objectives and competences:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Learning about CAD/CAM systems for apparel industry, which are used in the preparation of production, production management, 2D and 3D visualization of models, patterns and final products, which are intended for communication between designers, manufacturers, sellers and buyers;</li> <li>• Basic knowledge of capabilities of software packages for design, planning and technological preparation of production, as well as special packages used for custom made orders, knowledge of software packages for 3D visualization; Using the CAD system Optitex.</li> </ul> |
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#### **Predvideni študijski rezultati:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Znanje in razumevanje:</b> <ul style="list-style-type: none"> <li>• Pozna področja aplikacij ter pomen uporabe rač. sistemov in računalniško integrirane proizvodnje v oblačilni industriji;</li> <li>• Pozna programske pakete za tehnološko pripravo proizvodnje – od razvoja krojev do končne 3D vizualizacije;</li> <li>• Zna uporabljati CAD sistem Optitex;</li> <li>• Razume pomen uporabe 3D sistemov za prikaz izdelkov namenjen prodaji ter komunikaciji med oblikovalcem, tehnologom in kupcem.</li> </ul> |
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#### **Intended learning outcomes:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Knowledge and understanding:</b> <ul style="list-style-type: none"> <li>• Knows the application areas and the importance of using the computer systems and computer integrated manufacturing in the apparel industry;</li> <li>• Knows the software packages for the technological preparation of production - from development of pattern to a final 3D visualization;</li> <li>• Knows how to use CAD system Optitex;</li> <li>• Understands the importance of using 3D systems for simulation of products intended for sale, and communication between designers, technicians and customers.</li> </ul> |
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#### **Metode poučevanja in učenja:**

|                                  |
|----------------------------------|
| Predavanja, vaje na CAD sistemu. |
|----------------------------------|

#### **Learning and teaching methods:**

|                                   |
|-----------------------------------|
| Lectures, tutorial on CAD system. |
|-----------------------------------|

#### **Načini ocenjevanja:**

|                           |         |                                    |
|---------------------------|---------|------------------------------------|
| Pisni izpit               | 50,00 % | Written examination                |
| Praktični kolokvij iz vaj | 50,00 % | Practical colloquium from tutorial |

**Reference nosilca/Lecturer's references:**

1. JEVŠNIK, Simona, KALAO&#286;LU, Fatma, ERYÜRÜK, Hanife, BIZJAK, Matejka, STJEPANOVIĆ, Zoran. Evaluation of a garment fit model using AHP. *Fibres & textiles in Eastern Europe*, ISSN 1230-3666, 2015, vol. 23, iss. 2(110), str. 116-122;
2. ŠAJN GORJANC, Dunja, BIZJAK, Matejka. The influence of constructional parameters on deformability of elastic cotton fabrics. *Journal of engineered fibers and fabrics*, ISSN 1558-9250, 2014, vol. 9, iss. 1, str. 38-46;
3. ŠAJN GORJANC, Dunja, DIMITROVSKI, Krste, BIZJAK, Matejka. Thermal and water vapor resistance of the elastic and conventional cotton fabrics. *Textile research journal*, ISSN 0040-5175, 2012, vol. 82, no. 14, str. 1498-1506, ilustr;
4. RIJAVEC, Tatjana, BIZJAK, Matejka. Influence of constructional parameters on end-use properties of fine cotton shirting made of compact yarn. *Vlákna a textil*, ISSN 1335-0617, 2010, roč. 17, 2, str. 21-26;
5. BIZJAK, Matejka, ŠAJN GORJANC, Dunja. The influence of increased elasticity on resistance of cotton fabrics. V: 13th International Izmir Textile and Apparel Symposium, 02-05 April, 2014, Izmir, Turkey. PERRIN AKÇAKOCA KUMBASAR, Emriye (ur.). *Proceedings : IITAS 2014*. Izmir: Ege University, Faculty of Engineering, Department of Textile Engineering, 2014, str. 337-340.

# RAČUNALNIŠKO OBLIKOVANJE PLETIV IN PLETENIN

|                                   |                                                          |
|-----------------------------------|----------------------------------------------------------|
| <b>Predmet:</b>                   | Računalniško oblikovanje pletiv in pletenin              |
| <b>Course title:</b>              | Computer-assisted design of knitted fabrics and knitwear |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                                   |

|                                                       |                       |               |                 |                  |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

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|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0068707 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 10253   |

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Alenka Pavko Čuden, Živa Zupin

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija in izbira predmeta.

**Prerequisites:**

Enrolment into study year and course selection.

**Vsebina:**

**Predavanja:**

- Temeljne votkovne vezave, votkovni žakar in intarzija (shematski prikaz, lastnosti);
- Temeljne snutkovne vezave, sestavljene snutkovne vezave (shematski prikaz, lastnosti);
- CAD sistemi v votkovem in snutkovnem pletilstvu;
- Principi upravljanja barv pri računalniški pripravi kolekcije pletiv/pletenin.

**Vaje:**

- Računalniško oblikovanje votkovih in snutkovnih pletiv.

**Content (Syllabus outline):**

**Lectures:**

- Basic weft knitted structures, weft knitted jacquard, intarsia (schematic notation, properties);
- Basic warp knitted structures, complex warp knitted structures (schematic notation, properties);
- CAD systems in weft and warp knitting;
- Principles of color management in the preparation of computer-assisted collection of knitted fabrics/knitwear.

**Exercises:**

- Computer-assisted design of weft and warp knitted fabrics.

**Temeljna literatura in viri/Readings:**

- RAZ, S. Flat Knitting Technology. Westhausen : Universal Maschinenfabrik, 1993;
- RAZ, S. Flat Knitting : the New Generation. Bamberg : Meisenbach, 1991;
- PAVKO-ČUDEN, A. Kompozicija pletenin 1. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2008;
- PAVKO-ČUDEN, A. Kompozicija pletenin 2. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2008.
- Promocijsko gradivo proizvajalcev CAD pletilskih sistemov / Promotional materials for CAD knitting systems producers;

**Cilji in kompetence:****Cilji:**

- Študenti spoznajo temeljne pletene strukture-vezave (votkovne, snutkovne); hkrati spoznajo specifične lastnosti pletiv v teh vezavah v odvisnosti od izdelavne tehnologije, parametrov pletiva in surovin.
- Študenti spoznajo principe in načine računalniškega vzorčenja pletiv/pletenin.

**Kompetence:**

- Poznavanje pomena in uporabe posameznih pletenih struktur in barvnih vzorcev na oblačilnem in neoblačilnem področju;
- Poznavanje principov in posebnosti uporabe CAD programov za projektiranje pletiv in pletenin;
- Poznavanje principov priprave tehnološke dokumentacije pletene strukture;
- Sposobnost identifikacije temeljnih pletenih struktur ter postopkov, po katerih so bile izdelane.

**Objectives and competences:****Objectives:**

- Students learn the basic knitted structures (weft, warp); at the same time they learn about the specific properties of knitted fabrics in these structures, depending on the fabrication technology, parameters of fabrics and raw materials.
- Students learn the principles and methods of sampling computer assisted design of knitted fabrics/knitwear.

**Competences:**

- Knowledge of the importance and use of certain knitted structures and color patterns on clothing and non-clothing area;
- Knowledge of the principles and specialties of the use of CAD programs to design knitted fabrics and knitwear;
- Knowledge of the principles of technological documentation preparation for knitted structures;
- Ability to identify basic knitted structures and processes by which they were made.

**Predvideni študijski rezultati:****Znanje in razumevanje:**

- Razumevanje povezave med parametri pletiva ter vzorčnimi možnostmi in omejitvami;
- Razumevanje povezave med pletenim barvnim vzorcem ali strukturo, surovino ter estetskimi lastnostmi pletiva/pletenin;
- Razumevanje temeljnih principov računalniškega vzorčenja pletiv/pletenin;
- Razumevanje povezave med oblikovanjem in tehnologijo izdelave pletiv in pletenin.

**Intended learning outcomes:****Knowledge and understanding:**

- Understanding the connection between the parameters of knitted fabric and patterning possibilities and limitations;
- Understanding the link between color knitted pattern or structure, material and aesthetic properties of knitted fabric/knitwear;
- Understanding the basic principles of computer assisted design of knitted fabrics/knitwear;
- Understanding the link between design and manufacturing technology of knitted fabrics and knitwear.

**Metode poučevanja in učenja:**

Predavanja, računalniško oblikovanje simulacij pletenih struktur.

**Learning and teaching methods:**

Lectures, computer-assisted design (simulation) of knitted structures.

**Načini ocenjevanja:**

Pisni izpit

**Delež/Weight**

50,00 %

**Assessment:**

Written exam

|                  |         |                  |
|------------------|---------|------------------|
| Poročilo o vajah | 50,00 % | Excercise report |
|------------------|---------|------------------|

#### Reference nosilca/Lecturer's references:

##### Alenka Pavko Čuden

1. RANT, Darja, PAVKO-ČUDEN, Alenka. Design of multifunctional weft knitted structures with auxetic potential. V: 17th Techtextil symposium and 7th Avantex symposium, Frankfurt, Germany. Innovations for life. Frankfurt am Main: Messe Frankfurt Exhibition, 2013, str.27;
2. PAVKO-ČUDEN, Alenka. Creative knitwear teaching. Knitting international, 2014, let. 120, št. 6, str. 25-27;
3. VILAR, A., MOŽINA, K., PAVKO-ČUDEN, A. Tipografija in logotipi v pletenih strukturah = Typography and logos in knitted structures. Tekstilec, 2013, letn. 56, št. 1, str. 34-46;
4. RANT, D., CIOBANU, R., BLAGA, M., PAVKO-ČUDEN, A. Compression on foldable links-links knitted structures. Tekstil ve konfeksiyon dergisi, 2014, vol. 24, no. 4, str. 349-355.

##### Živa Zupin:

1. ZUPIN, Ž., HLADNIK, A., DIMITROVSKI, K. Prediction of one-layer woven fabrics air permeability using porosity parameters. Textile research journal, 2012, vol. 82, no. 2, str. 117-128;
2. ZUPIN, Ž., PENDIČ, A., DIMITROVSKI, K.. Primerjalna študija fizikalno mehanskih lastnosti tkanin v vezavah keper in atlas = Comparative analysis of physical and mechanical properties of fabrics woven in twill and sateen weaves. Tekstilec, 2010, vol. 53, št. 1/3, str. 33-49;
3. ZUPIN, Ž., DIMITROVSKI, K., HLADNIK, A. Evaluation of influence of densities and weaves on physical and mechanical properties of "squared" cotton woven fabrics. Tekstil, 2009, vol. 58, no. 7, str. 309-320;
4. ZUPIN, Ž. Deformacija Ittnovega barvnega kroga v barvnih sistemih CIE L\*a\*b\* in CIE xy = Deformation of Itten's colour circle in colour systems CIE L\*a\*b\* and CIE xy. Tekstilec, 2007, vol. 50, št. 4/6, str. 133-149.

# RAČUNALNIŠKO OBLIKOVANJE PREJ IN TKANIN

|                                   |                                                     |
|-----------------------------------|-----------------------------------------------------|
| <b>Predmet:</b>                   | Računalniško oblikovanje prej in tkanin             |
| <b>Course title:</b>              | Computer-assisted design of yarns and woven fabrics |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                              |

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

Univerzitetna koda predmeta/University course code: 0068708

Koda učne enote na članici/UL Member course code: 10254

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

Nosilec predmeta/Lecturer: Matejka Bizjak , Živa Zupin

Izvajalci predavanj:

Izvajalci seminarjev:

Izvajalci vaj:

Izvajalci kliničnih vaj:

Izvajalci drugih oblik:

Izvajalci praktičnega  
usposabljanja:

Vrsta predmeta/Course type: Izbirni/Elective

Jeziki/Languages:

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Vpis v letnik študija in izbira predmeta.

Prerequisites:

Enrolment into study year and course selection.

Vsebina:

- Spoznavanje programa Arah – weave za računalniško podprto načrtovanje tkanin;
- Enostavne in zahtevnejše konstrukcije prej in njihova simulacija;
- Spoznavanje osnovnih in zahtevnejših tkanih struktur (večosnovne, večvotkovne, dvojne, votle);
- Spoznavanje programa Arah – Paint obdelavo slik in vzorcev za žakarske tkanine;
- Različne konstrukcijske izvedbe žakarskih vzorcev;
- Spoznavanje konstrukcijskih parametrov tkanin in njihov vpliv na vzorčenje;

Content (Syllabus outline):

- Learning about the software Arah – weave for computer-aided design of fabrics;
- Simple and complex structure of threads and their simulation;
- Understanding the basic and complex woven structures (warp/weft backed, double, hollow);
- Learning about the program Arah – Paint for processing images and patterns for jacquard fabrics;
- Various implementations of Jacquard patterns;
- Understanding the constructional parameters of fabrics and their influence on sampling;

|                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Različne možnosti barvnega in strukturnega vzorčenja tkanin;</li> <li>Spoznavanje programa Arah – drape za simulacijo tkanih vzorcev na objektih;</li> <li></li> </ul> <p><b>Vaje:</b></p> <ul style="list-style-type: none"> <li>Izdelava osnovnih in zahtevnejših vezev s pomočjo CAD sistema Arahne.</li> </ul> | <ul style="list-style-type: none"> <li>Various options of color and structural sampling fabrics;</li> <li>Learning about the program Arah – drape for simulation of woven patterns on objects.</li> </ul> <p><b>Tutorial:</b></p> <ul style="list-style-type: none"> <li>Creating basic and advanced woven structures using CAD system Arahne.</li> </ul> |
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#### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>BIZJAK, M. Kompozicija tkanin 1. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2009;</li> <li>LAMPRET, I. Vezave tkanin. Listne vezave. Kranj : Tekstilni center, 1976;</li> <li>ŽIBERNA-ŠUJICA, M., in GAČNIK, A. Kompozicija in uporabnost tkanin. Maribor : Visoka tehniška šola, 1979;</li> <li>DOBNIK-DUBROVSKI, P. Računalniško konstruiranje listnih tkanin : navodila za vaje. Maribor : Fakulteta za strojništvo, Oddelek za tekstilstvo, 2004; ArahWeave : User Manual. www.arahne.si;</li> <li>DIMITROVSKI, K. Barvno oblikovanje pestrih tkanin. V Interdisciplinarnost barve. Del 2. Ur. S. Jeler in M. Kumar. Maribor : Društvo koloristov Slovenije, 2003, str. 455–475;</li> <li>HORN, E. C. Geometric Symmetry in Patterns and Tilings. Cambridge : Woodhead Publishing, 2000;</li> <li>GOERNER, D. Woven Structure and Design. Part 1, Single Cloth Construction. Leeds : British Textile Technology Group, 1986;</li> <li>GOERNER, D. Woven Structure and Design. Part 2, Compound Structures. Leeds : British Textile Technology Group, 1989.</li> </ul> |
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#### Cilji in kompetence:

Študent razume konstrukcijo prej ter osnovnih in zahtevnejših vezav, zna uporabljati računalniški sistem Arahne.

#### Objectives and competences:

The student understands the structure of threads, and basic and advanced woven structures, and is able use the computer system Arahne.

#### Predvideni študijski rezultati:

**Znanje in razumevanje:**

- Osnovne konstrukcije prej in simulacija na CAD Arahne;
- Osnovne in zahtevnejše vezave tkanin;
- Simulacije različnih tkanin na CAD Arahne.

#### Intended learning outcomes:

- Knowledge and understanding:
- Basic thread's structures and their simulation with use of CAD Arahne;
- Basic and advanced woven structures;
- Simulation of different fabrics with use of CAD Arahne.

#### Metode poučevanja in učenja:

Predavanja, praktične vaje .

#### Learning and teaching methods:

Lectures, practical exercises.

| Načini ocenjevanja: | Delež/Weight | Assessment:                 |
|---------------------|--------------|-----------------------------|
| Pisni izpit         | 50,00 %      | Written examination         |
| Vaje na CAD sistemu | 20,00 %      | Practicum on the CAD system |
| Kolokvij iz vaj     | 30,00 %      | Colloquium from tutorial    |

#### Reference nosilca/Lecturer's references:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Matejka Bizjak:</b></p> <ol style="list-style-type: none"> <li>BIZJAK, Matejka, DIMITROVSKI, Krste. Izrada i svojstva elastičnih tkanih međupodstava = Manufacture and properties of elastic woven interlinens = Herstellung und Eigenschaften elastischer gewebter Einlagen. Tekstil, ISSN 0492-5882. [Print ed.], 2002, vol. 51, no. 4, str. 161-169;</li> <li>BIZJAK, Matejka, DIMITROVSKI, Krste. The role of technological parameters at woven fabrics construction. International journal of polymeric materials, ISSN 0091-4037. [Tiskana izd.], 2000, vol. 47, no. 4, str. 603-612;</li> </ol> |
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3. BIZJAK, Matejka. How much technology should know a design student?. Magyar textiltechnika, ISSN 0025-0309, 1998, különszám = Spec. ed., str. 15-18;
4. BIZJAK, Matejka. Elektronski žakarski mehanizem = Electronic jacquard mechanism. Tekstilec, ISSN 0351-3386, julij-avgust 1994, let. 37, št. 7/8, str. 214-220;
5. DIMITROVSKI, Krste, BIZJAK, Matejka. Spremembe pri izdelavi listnih in žakarskih tkanin v zadnjem desetletju = Changes of dobby and jacquard weaving in last decade. Tekstilec, ISSN 0351-3386, 1999, vol. 42, no. 11/12, str. 371-375;
6. DIMITROVSKI, Krste, BIZJAK, Matejka. Tkanje na elektronskim modularnim žakarima - novi pristup. Tekstil, ISSN 0492-5882. [Print ed.], 1998, vol. 47, br. 11, str. 590-593.

**Živa Zupin:**

- ZUPIN, Ž., HLADNIK, A., DIMITROVSKI, K. Prediction of one-layer woven fabrics air permeability using porosity parameters. Textile research journal, 2012, vol. 82, no. 2, str. 117-128;
- ZUPIN, Ž., PENDIĆ, A., DIMITROVSKI, K.. Primerjalna študija fizikalno mehanskih lastnosti tkanin v vezavah keper in atlas = Comparative analysis of physical and mechanical properties of fabrics woven in twill and sateen weaves. Tekstilec, 2010, vol. 53, št. 1/3, str. 33-49;
- ZUPIN, Ž., DIMITROVSKI, K., HLADNIK, A. Evaluation of influence of densities and weaves on physical and mechanical properties of "squared" cotton woven fabrics. Tekstil, 2009, vol. 58, no. 7, str. 309-320;
- ZUPIN, Ž. Deformacija Ittenovega barvnega kroga v barvnih sistemih CIE L\*a\*b\* in CIE xy = Deformation of Itten's colour circle in colour systems CIE L\*a\*b\* and CIE xy. Tekstilec, 2007, vol. 50, št. 4/6, str. 133-149.

# RAČUNALNIŠKO OBLIKOVANJE ZA TISK

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|-----------------------------------|---------------------------------------|
| <b>Predmet:</b>                   | Računalniško oblikovanje za tisk      |
| <b>Course title:</b>              | Computer-assisted design for printing |
| <b>Članica nosilka/UL Member:</b> | UL NTF                                |

|                                                       |                       |               |                 |                  |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|
| <b>Študijski programi in stopnja</b><br>(ni študijev) | <b>Študijska smer</b> | <b>Letnik</b> | <b>Semestri</b> | <b>Izbirnost</b> |
|-------------------------------------------------------|-----------------------|---------------|-----------------|------------------|

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|------------------------------------------------------------|---------|
| <b>Univerzitetna koda predmeta/University course code:</b> | 0068709 |
| <b>Koda učne enote na članici/UL Member course code:</b>   | 10255   |

| <b>Predavanja</b><br>/Lectures | <b>Seminar</b><br>/Seminar | <b>Vaje</b><br>/Tutorials | <b>Klinične vaje</b><br>/Clinical<br>tutorials | <b>Druge oblike</b><br>študija<br>/Other forms<br>of study | <b>Samostojno</b><br>delo<br>/Individual<br>student work | <b>ECTS</b> |
|--------------------------------|----------------------------|---------------------------|------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------|-------------|
| 30                             | 15                         | 15                        | 0                                              | 0                                                          | 60                                                       | 4           |

**Nosilec predmeta/Lecturer:** Marija Gorjanc

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

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|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija in izbira predmeta.

**Prerequisites:**

Enrollment in the study year and course selection.

**Vsebina:**

- Razlika med vektorsko in rastrsko grafiko;
- Konvertiranje rasterske grafike v vektorsko in obratno;
- Barvni prostor RGB in CMYK;
- Skeniranje vzorca in njegova digitalizacija;
- Priprava vzorcev glede na specifičnosti posamezne tiskarske tehnike;
- Postopki izdelave tiskovnih form za filmski tisk;
- Postopki reprodukcije vzorcev za filmski in digitalni tisk;
- Shranjevanje grafičnih datotek;
- Osnove barvnega upravljanja;
- Redukcija barv;

**Content (Syllabus outline):**

- The difference between vector and raster graphics;
- Converting raster graphics to vector and vice versa;
- Colour spaces RGB and CMYK;
- Scanning of sample and its digitization;
- Preparation of the samples with respect to the specificities of each printing technique;
- Production processes of printing forms for the flat screen printing;
- Reproduction processes of patterns for flat screen and digital printing;
- Saving files in graphics;

|                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                              |
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| <ul style="list-style-type: none"> <li>• Raportiranje;</li> <li>• Izdelava barvnih izvlečkov;</li> <li>• Simulacija tekstilij in specialnih efektov;</li> <li>• Strokovna terminologija.</li> </ul> | <ul style="list-style-type: none"> <li>• Basics of colour management;</li> <li>• Reduction of colours;</li> <li>• Repeat sketch;</li> <li>• Creating colour separations;</li> <li>• Simulation of textiles and special effects;</li> <li>• Technical terminology.</li> </ul> |
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#### **Temeljna literatura in viri/Readings:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• COLUSSY, M. K., in GREENBERG, S. Rendering Fashion, Fabric &amp; Prints. New Jersey : Pearson Education, 2005;</li> <li>• Adobe Photoshop cs : Classroom in a Book. San Jose : Adobe Systems, 2004;</li> <li>• Adobe Illustrator cs : Classroom in a Book. San Jose :</li> <li>• Adobe Systems, 2004; LYNCH, R. The Hidden Power of Photoshop CS. San Francisco : Sybex 2004;</li> <li>• DALY, T. Enciklopedija digitalne fotografije. Ljubljana : Tehniška založba Slovenije, 2004.</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Cilji in kompetence:**

|                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Študenti spoznajo računalniško grafiko za oblikovanje vzorcev in pripravo na tiskanje tekstilij;</li> <li>• Poznavanje programskega orodja Adobe Photoshop in Adobe Illustrator;</li> <li>• Znanje hitrega prilagajanja zahtevam povpraševanja;</li> <li>• Povečana inženirska produktivnost.</li> </ul> | <b>Objectives and competences:</b> <ul style="list-style-type: none"> <li>• Students learn to use computer graphics for designing patterns in textile printing;</li> <li>• Understanding of software tools such as Adobe Photoshop and Adobe Illustrator;</li> <li>• Ability of rapid adaptation to the demand;</li> <li>• Increased engineering productivity.</li> </ul> |
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#### **Predvideni študijski rezultati:**

|                                                                                                                                                 |                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Znanje in razumevanje:</b> <ul style="list-style-type: none"> <li>• Zna delati s programoma Adobe Photoshop in Adobe Illustrator.</li> </ul> | <b>Intended learning outcomes:</b> <b>Knowledge and understanding:</b> <ul style="list-style-type: none"> <li>• Able to perform in Adobe Photoshop and Adobe Illustrator.</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Metode poučevanja in učenja:**

|                                                                  |                                                                                                                                               |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Predavanja, seminarji, individualne naloge, laboratorijske vaje. | <b>Learning and teaching methods:</b><br>Lectures, seminar (individual or group project work), computer exercises and guided individual work. |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|

#### **Načini ocenjevanja:**

|                   | <b>Delež/Weight</b> | <b>Assessment:</b> |
|-------------------|---------------------|--------------------|
| Izpit             | 60,00 %             | Exam               |
| Seminar           | 20,00 %             | Seminar            |
| Računalniške vaje | 20,00 %             | Computer exercise  |

#### **Reference nosilca/Lecturer's references:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Grafični oblikovalec:</b> <ol style="list-style-type: none"> <li>1. SIMONČIČ, Barbara (urednik), TOMŠIČ, Brigita (urednik), GORJANC, Marija (urednik, grafični oblikovalec), 16th World Textile Conference AUTEX 2016, 8 - 10 June 2016, Ljubljana, Slovenia. Book of abstracts. Ljubljana: Faculty of Natural Sciences and Engineering, Department of Textiles, Graphic Arts and Design, 2016. 236 str., ilustr. ISBN 978-961-6900-16-4. [COBISS.SI-ID 284756736];</li> <li>2. SIMONČIČ, Barbara (urednik), TOMŠIČ, Brigita (urednik), GORJANC, Marija (urednik, grafični oblikovalec), 16th World Textile Conference AUTEX 2016, 8-10 June 2016, Ljubljana, Slovenia. Proceedings. Ljubljana: Faculty of Natural Sciences and Engineering, Department of Textiles, Graphic Arts and Design, 2016. 1 USB ključ, ilustr. ISBN 978-961-6900-17-1. [COBISS.SI-ID 284803840];</li> <li>3. BIZJAK, Matejka (urednik, recenzent), GORJANC, Marija (urednik, tehnični urednik, recenzent, grafični oblikovalec), 46. simpozij o novostih v tekstilstvu, Ljubljana, 4. junij 2015. Prepletanje znanja za tekstilno in modno industrijo : zbornik izvlečkov. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2015. 86 str. ISBN 978-961-6900-13-3. [COBISS.SI-ID 279670784];</li> </ol> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

4. SIMONČIČ, Barbara (urednik, recenzent), TOMŠIČ, Brigita (urednik, recenzent), 45. simpozij o novostih v tekstilstvu, Ljubljana, 3. junij 2014. Napredne tekstilije za družbo in gospodarstvo : zbornik izvlečkov. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2014. 59 str. ISBN 978-961-6900-06-5. [COBISS.SI-ID 274001920];
5. SIMONČIČ, Barbara (urednik, recenzent), GORJANC, Marija (urednik, grafični oblikovalec), 43. simpozij o novostih v tekstilstvu, Tekstilna obzorja, Ljubljana, 7. junij 2012. Tekstilna obzorja : zbornik izvlečkov. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2012. 60 str. ISBN 978-961-6045-99-5. [COBISS.SI-ID 261959680];
6. SIMONČIČ, Barbara (urednik), GORJANC, Marija (urednik, grafični oblikovalec), 40. simpozij o novostih v tekstilstvu, Ljubljana, 19. junij 2009. Tekstilna znanost v novih razmerah : zbornik izvlečkov. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2009. ISBN 978-961-6045-74-2. [COBISS.SI-ID 246207488].

**Oblikovalec ščitnega ovitka:**

1. SIMONČIČ, Barbara (urednik, recenzent), FORTE-TAVČER, Petra (urednik), 44. simpozij o novostih v tekstilstvu, Ljubljana, 6. junij 2013. Trajnostni razvoj v tekstilstvu : zbornik izvlečkov. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2013. 67 str. ISBN 978-961-6900-04-1. [COBISS.SI-ID 267281152].

**Mentor:**

1. ROBIČ, Marija. Digitalizacija motivov slovenskih pisanic za tekstilni tisk : magistrsko delo = Digitalisation of Slovenian Easter egg motifs for textile printing : master's thesis. Ljubljana: [M. Robič], 2016. XI, 63 f., ilustr. <https://repozitorij.uni-lj.si/IzpisGradiva.php?id=87706&lang=slv>. [COBISS.SI-ID 3288432];
2. AVDIJA, Škurta, JAN, Ana, JERMANČIČ, Anja, KREBELJ, Sandra, LOGAR, Nina, MILOŠEVIČ, Petra, RAJEVEC, Katarina, STIPIČ, Sabina, STIPIČ, Sara, SUKIČ, Neža, ŽUPAN, Nika, FAJFAR, Laura. "Ljubljanski cek'r" : razstava študentov tekstilstva, Naravoslovnotehniške fakultete, (2. in 3. letnik Načrtovanje tekstilij in oblačil ter 3. letnik Proizvodnja tekstilij) Mestna hiša, Ljubljana, od 23. 6. - 1. 7. 2014. 2014. [COBISS.SI-ID 3026800].

## RAZVOJ KROJEV OBLAČIL

|                                   |                                  |
|-----------------------------------|----------------------------------|
| <b>Predmet:</b>                   | Razvoj krojev oblačil            |
| <b>Course title:</b>              | Development of clothing patterns |
| <b>Članica nosilka/UL Member:</b> | UL NTF                           |

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

Univerzitetna koda predmeta/University course code: 0068741

Koda učne enote na članici/UL Member course code: 11313

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 15                  | 15                 | 0                                       | 0                                                   | 60                                                | 4    |

Nosilec predmeta/Lecturer: Matejka Bizjak, Živa Zupin

Izvajalci predavanj:

Izvajalci seminarjev:

Izvajalci vaj:

Izvajalci kliničnih vaj:

Izvajalci drugih oblik:

Izvajalci praktičnega  
usposabljanja:

Vrsta predmeta/Course type: Obvezni/ Compulsory

Jeziki/Languages:

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Vpis v letnik študija.

Prerequisites:

Enrolment into study year.

Vsebina:

- Oblačilna antropometrija, standardi s področja oblačilne antropometrije;
- Računalniška oblačilna antropometrija;
- Oblikovanje tabel mer potrošnikov, različne oblike teles/drž potrošnikov in njihov vpliv na konstrukcijo/modelacijo krojev oblačil;
- Vpliv lastnosti tekstilij na konstrukcijo/modelacije krojev oblačil (vpliv elastičnosti pletiv/tkanin, diagonalnega krojenja, smer lasu,...);
- Tehnična modna skica, tehnološka dokumentacija;

Content (Syllabus outline):

- Clothing anthropometry, standards in the field of clothing anthropometry, body and garment measurements;
- Computer clothing anthropometry;
- Size chart formulation, different types of bodies/posture and their corresponding impacts on pattern construction/modelling;
- The impact of textile's properties on pattern construction/modelling (the impact, for example, of fabric elasticity, diagonal cutting, the direction of the hair);
- Technical fashion sketches, technical documentation;

|                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Konstrukcija/modelacija izbranih ženskih krojev oblačil;</li> <li>• Postopek gradiranja kroja;</li> <li>• Sodobni računalniški sistemi za konstrukcijo / modeliranje / gradiranje krojev oblačil (Lectra);</li> <li>• Konstrukcija/modeliranje krojev oblačil v naravni velikosti in preizkušanje njihove ustreznosti z izdelavo poskusnih modelov oblačil.</li> </ul> | <ul style="list-style-type: none"> <li>• Construction / modelling of selected women's garment patterns;</li> <li>• Pattern grading;</li> <li>• Computer systems for pattern construction /modelling / grading (Lectra);</li> <li>• Construction/modelling of garment patterns in their natural sizes and testing their suitability with the production of experimental models.</li> </ul> |
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### **Temeljna literatura in viri/Readings:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• System M. Müller&amp;Sohn; Schnittkonstruktionen für RÖCKE und HOSEN, Rundschau-Verlag Otto G. Königer GmbH&amp;Co., München, 1996;</li> <li>• System M. Müller&amp;Sohn; Schnittkonstruktionen für KLEIDER und BLUSEN, Rundschau-Verlag Otto G. Königer GmbH&amp;Co., München, 1997;</li> <li>• System M. Müller&amp;Sohn; Schnittkonstruktionen für JACKEN und MÄNTEL, Rundschau-Verlag Otto G. Königer GmbH&amp;Co., München, 1994;</li> <li>• System M. Müller&amp;Sohn; HAKA Schnittkonstruktionen, Rundschau-Verlag Otto G. Königer GmbH&amp;Co., München, 2000;</li> <li>• Annegret BRINKMANN-STEILER; DOB-Gradierung Schnitt-Know-how für Industrie und Handwerk, Rundschau-Verlag Otto G. Königer GmbH&amp;Co., München, 2001;</li> <li>• Revije Rundschau (mesečna izdaja) moška + ženska;</li> <li>• Alison BEAZLY &amp; Terry BOND; Computer-aided pattern design &amp; product development, Blackwell Publishing, UK, 2003.</li> </ul> |
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### **Cilji in kompetence:**

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| <ul style="list-style-type: none"> <li>• Razumevanje pomena oblačilne antropometrije v procesu razvoja krojev oblačil, računalniška antropometrija;</li> <li>• Poznavanje standardov s tega področja;</li> <li>• Razumevanje prenosa telesnih mer v postopek konstrukcije osnovnih krojev oblačil, razumevanje vpliva segmentacije tržišča na oblikovanje tabel mer;</li> <li>• Razumevanje vpliva različnih oblik teles in njihovih drž na konstrukcijo/modelacijo krojev oblačil;</li> <li>• Sposobnost upoštevanja lastnosti tekstilij na konstrukcijo/modelacijo krojev oblačil (vpliv elastičnosti materialov, diagonalnega krojenja, itd.);</li> <li>• Spoznavanje tehnične modne skice in sposobnost izrisa tehnične modne skice;</li> <li>• Samostojna konstrukcija/modelacija izbranih krojev oblačil;</li> <li>• Seznanitev z gradiranje krojev oblačil;</li> <li>• Spoznavanje sodobnih računalniških sistemov za konstrukcijo / modeliranje / gradiranje krojev oblačil;</li> <li>• Poznavanje sodobne strokovne terminologije.</li> </ul> |
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### **Objectives and competences:**

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| <ul style="list-style-type: none"> <li>• Understanding the importance of clothing anthropometry in the process of developing garment patterns, modern computer clothing anthropometry;</li> <li>• Familiarisation with standards;</li> <li>• Understanding the transfer of physical dimensions onto the process of basic garment patterns construction;</li> <li>• Understanding the impact of market segmentation on size chart formulation;</li> <li>• Understanding the impact of different types of bodies and postures on pattern construction / modelling;</li> <li>• Ability to consider the properties of textiles in pattern construction / modelling (the impact of, for example, material elasticity and diagonal cutting);</li> <li>• Learning about the role of technical fashion sketches and gaining the ability to draw technical fashion sketches; Independent construction / modelling of selected garment patterns;</li> <li>• Familiarisation with pattern grading; An introduction to modern computer systems for the purposes of pattern construction / modelling / grading;</li> <li>• Knowing the modern technical terminology.</li> </ul> |
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### **Predvideni študijski rezultati:**

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| <b>Znanje in razumevanje:</b> <ul style="list-style-type: none"> <li>• Poznavanje področja antropometrije in standardov s tega področja;</li> </ul> |
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### **Intended learning outcomes:**

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| <b>Knowledge and understanding:</b> <ul style="list-style-type: none"> <li>• Knowledge of the anthropometry and standards of this area;</li> </ul> |
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| <ul style="list-style-type: none"> <li>• Poznavanje prenosa telesnih mer v postopek konstrukcije in modelacije krojev oblačil;</li> <li>• Izdelava tehnične modne skice in upoštevanje lastnosti materiala na konstrukciji/modelaciji krojev;</li> <li>• Samostojna konstrukcija izbranih krojev;</li> <li>• Poznavanje cad sistemov za konstrukcijo/modelacijo/gradiranje krojev oblačil.</li> </ul> | <ul style="list-style-type: none"> <li>• Knowledge of how to transfer physical dimensions to the process of pattern construction and modelling;</li> <li>• An elaboration of technical fashion sketches and a consideration of the material properties in pattern construction / modelling;</li> <li>• Independent pattern construction;</li> <li>• Knowledge of CAD systems for pattern construction/modelling/grading.</li> </ul> |
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|----------------------------------------------|---------------------------------------------|
| <b>Metode poučevanja in učenja:</b>          | <b>Learning and teaching methods:</b>       |
| Predavanja, konstruiranje in risanje krojev. | Lectures, pattern construction and drawing. |

|                            |                     |                    |
|----------------------------|---------------------|--------------------|
| <b>Načini ocenjevanja:</b> | <b>Delež/Weight</b> | <b>Assessment:</b> |
| Pisni izpit                | 50,00 %             | Written exam       |
| Seminarska naloga          | 50,00 %             | Seminar work       |

#### Reference nosilca/Lecturer's references:

##### Matejka Bizjak:

1. STANKOVIĆ, Snežana, BIZJAK, Matejka. Effect of yarn folding on comfort properties of hemp knitted fabrics. Clothing and textiles research journal, ISSN 1940-2473, 2014, vol. 32, no. 3, str. [202]-214;
2. ŠAJN GORJANC, Dunja, BIZJAK, Matejka. The influence of constructional parameters on deformability of elastic cotton fabrics. Journal of engineered fibers and fabrics, ISSN 1558-9250, 2014, vol. 9, iss. 1, str. 38-46;
3. NOVAKOVIĆ, Milada, BIZJAK, Matejka, STANKOVIĆ, Snežana. Dizajn i pletenina u funkciji optimalnog toplotnog komfora = Knitted fabrics design impact on optimal thermal comfort. Tekstilna industrija, ISSN 0040-2389, 2013, god. 60, br. 1, str. 30-36. [COBISS.SI-ID 2878832];
4. ŠAJN GORJANC, Dunja, DIMITROVSKI, Krste, BIZJAK, Matejka. Thermal and water vapor resistance of the elastic and conventional cotton fabrics. Textile research journal, ISSN 0040-5175, 2012, vol. 82, no. 14, str. 1498-1506, ilustr.;
5. RIJAVEC, Tatjana, BIZJAK, Matejka. Influence of constructional parameters on end-use properties of fine cotton shirting made of compact yarn. Vlákna a textil, ISSN 1335-0617, 2010, roč. 17, 2, str. 21-26;
6. NOVAKOVIĆ, Milada, STANKOVIĆ, Snežana, BIZJAK, Matejka. Komfor odeće za sport i rekreaciju = Comfort in sports and leisure wear. V: 3. naučno stručni skup Preduzetništvo, inženjerstvo i menadžment, Zrenjanin, 8.12.2012. MIRKOV, Smiljana (ur.), MOLNAR, Robert (ur.). Zbornik radova. Zrenjanin: Visoka tehnička škola strukovnih studija, 2013, str. 267-273;
7. STANKOVIĆ, Snežana, POPOVIĆ, Dušan, POPARIĆ, Goran, BIZJAK, Matejka. Ultraviolet protection factor of gray-state plain cotton knitted fabrics. Textile research journal, ISSN 0040-5175, 2009, vol. 79, no. 11, str. 1034-1042. ;

##### Živa Zupin:

1. ZUPIN, Ž., HLADNIK, A., DIMITROVSKI, K. Prediction of one-layer woven fabrics air permeability using porosity parameters. Textile research journal, 2012, vol. 82, no. 2, str. 117-128;
2. ZUPIN, Ž., PENDIĆ, A., DIMITROVSKI, K.. Primerjalna študija fizikalno mehanskih lastnosti tkanin v vezavah keper in atlas = Comparative analysis of physical and mechanical properties of fabrics woven in twill and sateen weaves. Tekstilec, 2010, vol. 53, št. 1/3, str. 33-49;
3. ZUPIN, Ž., DIMITROVSKI, K., HLADNIK, A. Evaluation of influence of densities and weaves on physical and mechanical properties of "squared" cotton woven fabrics. Tekstil, 2009, vol. 58, no. 7, str. 309-320;
4. RIJAVEC, T., ZUPIN, Ž. Soybean protein fibres (SPF). V: KREZHOVA, Dora (ur.). Recent trends for enhancing the diversity and quality of soybean products. Rijeka: InTech, 2011, str. [501]-522. <http://www.intechopen.com/articles/show/title/soybean-protein-fibres-spf->;
5. ZUPIN, Ž., DIMITROVSKI, K. Mechanical properties of fabrics from cotton and biodegradable yarns bamboo, SPF, PLA in weft. V: DOBNIK-DUBROVSKI, Polona (ur.). Woven fabric engineering. Rijeka: Sciyo, cop. 2010, ch. 2, str. [25]-46. <http://www.intechopen.com/books/show/title/woven-fabric-engineering>.

# STATISTIKA

**Predmet:** Statistika  
**Course title:** Statistics  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068742

**Koda učne enote na članici/UL Member course code:** 10885

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 0                   | 30                 | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Stanislav Praček

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrollment in academic year with an examination in mathematics.

**Vsebina:**

**Osnove statistike:**

- Uvod; Osnovni pojmi;
- Statistične funkcije (povprečje, mediana, modus,...);
- Statistične funkcije za vzorčenje (varianca, kovarianca, standardni odklon,...).

**Obdelava podatkov:**

- Uvod v obdelavo podatkov;
- Tabeliranje in urejanje podatkov;
- Statistična obdelava podatkov.

**Verjetnost:**

- Osnove verjetnosti;

**Content (Syllabus outline):**

**Basic statistics:**

- Introduction; Basic concepts;
- Statistical features (mean, median, mode, ...);
- Statistical Functions sampling (variance, covariance, standard deviation, ...).

**Data processing:**

- Introduction;
- Tabulation of data processing and data management;
- Statistical data processing.

**Probability:**

- Basic probability;

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Pogojna verjetnost.</li> </ul> <b>Teoretične porazdelitve:</b> <ul style="list-style-type: none"> <li>• Normalna porazdelitev;</li> <li>• t-porazdelitev;</li> <li>• Binomska porazdelitev;</li> <li>• Poissonova porazdelitev;</li> <li>• F-porazdelitev.</li> </ul> <b>Vzorčenje:</b> <ul style="list-style-type: none"> <li>• Statistično zaupanje;</li> <li>• Statistične količine (korelacija, korelacijski koeficient,...);</li> <li>• Linearna regresija in regresijska premica.</li> </ul> | <ul style="list-style-type: none"> <li>• Conditional probability.</li> </ul> <b>Theoretical distributions:</b> <ul style="list-style-type: none"> <li>• Normal distribution;</li> <li>• t-Distribution;</li> <li>• Binomial distribution;</li> <li>• Poisson distribution;</li> <li>• F-distribution.</li> </ul> <b>Sampling:</b> <ul style="list-style-type: none"> <li>• Statistical confidence;</li> <li>• Statistical quantities (correlation coefficient of correlation, ...);</li> <li>• Linear regression and the regression line.</li> </ul> |
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### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• GRAF, U., HENING, H.J., WILRICH P.T.: Statistische Methoden bei Textilen Untersuchungen, Heidelberg, Springer Verlag 1974;</li> <li>• SACHS, L.: Angewandte Statistik, Anwendung statistischer Methoden, (7.izd.) Berlin, Springer Verlag 1999;</li> <li>• JOHNSON, R.A., Miller &amp; Freund's Probability and Statistics for Engenneers (6.izd.) Prentice Hall, 1999;</li> <li>• WEISS, N.A.: Elementary statistics (4. izd.) Addison Wesley Longman, 1999;</li> <li>• HLADNIK, Mičan. Verjetnost in statistika (2002);</li> <li>• PRAČEK Stanislav, Statistika, UNI-LJ,NTF, OT (2015).</li> </ul> |
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### Cilji in kompetence:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cilj in namen</b> predmeta je naučiti študente osnove statistike.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Objectives and competences:</b><br><b>The aim and purpose</b> of the course is to teach students the fundamentals of statistics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Predmetno specifične kompetence:</b> <ul style="list-style-type: none"> <li>• Študent pozna in zna uporabljati metode zbiranja, urejevanja, prikazovanja ter vrednotenja rezultatov meritev na objektivni in deduktiven način;</li> <li>• Pozna strokovno izrazoslovje statistike in statistične računske metode vrednotenja ene, dveh ali več temeljnih skupnosti.</li> <li>• Prav tako pozna osnovne teoretičnih modelnih porazdelitev, ki predstavljajo splošno temeljno znanje za deduktivno statistično analizo;</li> <li>• Predmet navaja študente na kritično presojo rezultatov s preverjanjem veljavnosti ničelne in alternativne hipoteze ter omogoča sprejemanje razumnih odločitev v praksi na osnovi deduktivne statistične analize in s tem reševanja tehnoloških problemov ali sposobnosti ohranjanja in skrbi za kakovost izdelkov.</li> </ul> | <b>Subject-specific competencies:</b> <ul style="list-style-type: none"> <li>• The student knows and is able to use the methods of collecting, editing, presenting and evaluating the results of measurements in an objective and deductive manner;</li> <li>• The student knows the terminology and statistical calculation method of valuation of one, two or more population.</li> <li>• He is also aware of the underlying theoretical model distribution representing the general basic knowledge of deductive statistical analysis;</li> <li>• The subject stating students to critically assess the different results of the verification of the null and alternative hypotheses, and allows for make sound decisions in practice based on deductive statistical analysis, and thereby solving technological problems or the keeping and care for the quality of the products.</li> </ul> |

### Predvideni študijski rezultati:

|                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Znanje in razumevanje:</b> <ul style="list-style-type: none"> <li>• Osnovno znanje in razumevanje statistike in statistične deduktivne analize.</li> <li>• Poznavanje različnih metod statističnega vrednotenja meritev ene, dveh ali več temeljnih skupnosti.</li> <li>• Sposobnost matematično rešiti naloge razlik dveh srednjih vrednosti, izračunati linearne korelacije dveh ali večih spremenljivk, in z regresijsko</li> </ul> | <b>Intended learning outcomes:</b><br><b>Knowledge and understanding:</b> <ul style="list-style-type: none"> <li>• Basic knowledge and understanding of statistics and statistical deductive analysis.</li> <li>• Knowing the different methods of statistical evaluation of measurements of one, two or more population.</li> <li>• Ability to solve mathematical exams, the difference of two averages to calculate the linear correlation of two or more variables, and by a</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>analizo postaviti linearni model med dvema spremenljivkama.</p> <ul style="list-style-type: none"> <li>• Pridobljeno znanje, elementarne matematične metode in vrednotenje rezultatov omogočajo sklepno analizo in nedvoumen odgovor na zastavljena vprašanja o veljavnosti ničelne (H0) ali alternativne hipoteze (H1).</li> </ul> | <p>regression analysis to put a linear model between the two variables.</p> <ul style="list-style-type: none"> <li>• The acquired knowledge, elementary mathematical methods and evaluation of results allows for concluding analysis and unequivocal answer to the questions about the validity of the null (H0) and alternative hypothesis (H1).</li> </ul> |
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#### Metode poučevanja in učenja:

**Predavanja** so neposredno povezana z vajami, pri katerih študentje praktično spoznajo in razumejo temeljne osnove statistične teorije in matematično-statistične metode.

**Vaje** obsegajo reševanje računskih nalog z neposrednimi problemi povezanimi s tekstilno stroko ter od vsakega udeleženca zahtevajo aktivno in neposredno reševanje nalog pred avditorijem ostalih udeležencev.

Dodatno pojasnjevanje nekaterih vsebin predmeta je na željo posameznih študentov v času govorilnih ur.

#### Learning and teaching methods:

**Lectures** are directly related to the exercises in which the students learn practical and understand about basic fundamentals of statistical theory and mathematical-statistical methods.

**Exercises** comprise a solving problems with direct problems associated with the textile profession and from each participant require an active and direct solving exams in front of the auditorium of the other participants.

Additional clarifying of certain content of the course is at the request of individual students during consultation hours.

#### Načini ocenjevanja:

#### Delež/Weight

#### Assessment:

|             |          |                     |
|-------------|----------|---------------------|
| Pisni izpit | 100,00 % | Written examination |
|-------------|----------|---------------------|

#### Reference nosilca/Lecturer's references:

1. PRAČEK, Stanislav, MOŽINA, Klemen, SLUGA, Franci. Shock in the yarn during unwinding from packages. Abstr. appl. anal., 2013, vol. 2013, art. ID 972941, 6 str. <http://dx.doi.org/10.1155/2013/972941>, doi: 10.1155/2013/972941. [COBISS.SI-ID 2864240];
2. PRAČEK, Stanislav, MOŽINA, Klemen, SLUGA, Franci. Yarn motion during unwinding from packages. Math. comput. model. dyn. syst., 2012, vol. 18, no. 6, str. 553-569. <http://www.tandfonline.com/doi/abs/10.1080/13873954.2012.674688>, doi: 10.1080/13873954.2012.674688. [COBISS.SI-ID 2724976];
3. PRAČEK, Stanislav, SLUGA, Franci. Numerical simulations of yarn unwinding from packages. Mathematical and computational applications in science and engineering, 2010, vol. 15, no. 5, str. 846-852, ilustr. [http://mcjournal.org/specialissuevolume15\\_5/14.pdf](http://mcjournal.org/specialissuevolume15_5/14.pdf). [COBISS.SI-ID 2551664];
4. PRAČEK, Stanislav, SLUGA, Franci. Mathematical model for yarn unwinding from packages. Mathematical and computational applications in science and engineering, 2010, vol. 15, no. 5, str. 853-858, ilustr. [http://www.mcjournal.org/specialissuevolume15\\_5/15.pdf](http://www.mcjournal.org/specialissuevolume15_5/15.pdf). [COBISS.SI-ID 2551920].

# STROKOVNA ANGLEŠČINA

**Predmet:** Strokovna angleščina  
**Course title:** English for specific purposes  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068743

**Koda učne enote na članici/UL Member course code:** 10941

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 0                       | 60                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Lekt. mag. Barbara Luštek Preskar, prof. angl. in nem.

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

- Branje in strategije branja, uvajanje v diskurz strokovnih in tehničnih besedil;
- Določanje ključnih besed, pisanje povzetkov;
- Uporaba slovarjev, glosarjev in drugih informacijskih virov;
- Pisanje sestavkov in poročil;
- Opisovanje grafov;
- Poslovna komunikacija (telefoniranje, pisanje pisem, prošnje, življenjepisa, javno nastopanje);
- Sodelovanje v razpravah.

**Content (Syllabus outline):**

- Reading and reading strategies, introduction into discussing technical and professional texts;
- Defining and understanding keywords, writing abstracts;
- Using dictionaries, glossaries and other information sources,;
- Writing reports;
- Describing graphs;
- Business communication (telephoning, business correspondence, writing letters of application and CVs, giving public presentations);
- Taking active part in discussions.

**Temeljna literatura in viri/Readings:**

- LUŠTEK PRESKAR, B., English for Specific Purposes – Textile Engineering. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2011;
- Tekstilni tehniški slovar. Maribor : Zveza inženirjev in tehnikov tekstilcev Slovenije, 1983;
- Textile Terms and Definitions. 10th ed. Manchester : The Textile Institute, 1995;
- TORTORA, G. P. and COLLIER, B. J. Understanding textiles. New Jersey : Prentice Hall, 1997;
- FRITZ, A. and ANT, J. Consumer textiles. Australia : OUP, 1994;
- MILLER, E. Textiles. Properties and behaviour in clothing use. London : B. T. Batsford Ltd, 1992;
- JOSEPH, M. L. Introductory textile science. Northridge : Holt, Rinehart and Winston, 1977;
- RIDGWELL, L. and LINDBERG, E. Modern textiles. A collection of fabric samples of modern, smart, technical fabrics and geotextiles. London : Ridgwell press, 2003;
- Tekstilije – Označevanje nege s simboli. ISO 3758:2005;
- Standard guide for care symbols for care instructions on textile products. ASTM D5489 – 07;
- English Idioms and Idiomatic Expressions. [www.usingenglish.com/reference/idioms/](http://www.usingenglish.com/reference/idioms/);
- Natural Fibres 2009. [www.naturalfibres2009.org](http://www.naturalfibres2009.org).
- BRKAN, M. Angleško-slovenski slovar konfekcijske tehnologije. Maribor : Fakulteta za strojništvo, 2001;
- BRKAN, M. Slovensko-angleški konfekcijski slovar. Maribor : Fakulteta za strojništvo, 2008.

Literatura je dosegljiva v knjižnici Oddelka za tekstilstvo, grafiko in oblikovanje, NTF / Literature is available in the library at the Faculty of Natural Sciences and Engineering, Department of Textiles, Graphic Arts and Design.

**Cilji in kompetence:**

Dograjevanje splošnega znanja angleščine na višjo stopnjo z uvajanjem strokovnih tekstov.

**Predmetno specifične kompetence:**

- Izpopolnjevanje kompetenc v ustnem in pisnem izražanju;
- Širjenje besednega zaklada in gradnja strokovnega besedišča;
- Razvijanje bralnih spretnosti.

**Objectives and competences:**

Upgrading general knowledge of English to a higher level by introducing technical and professional texts.

**Course-specific competences:**

- Meeting competences in oral and written communication;
- Enriching the existing vocabulary and building technical vocabulary;
- Getting familiar with reading strategies to improve reading skills.

**Predvideni študijski rezultati:****Znanje in razumevanje:**

- Poglobljeno znanje posameznih slovničnih struktur;
- Povzemanje/parafraziranje;
- Pisanje abstraktov, sestavkov in projektnih poročil;
- Pisne in ustne komunikacijske spretnosti;
- Predstavitve v angleščini;
- Poslovna komunikacija.

**Intended learning outcomes:****Knowledge and understanding:**

- In-depth knowledge of specific grammatical structures;
- Summarising/paraphrasing;
- Writing abstracts, paragraphs and project reports;
- Oral and written communication skills;
- Giving presentations in English;
- Business communication.

**Metode poučevanja in učenja:**

Predavanja, vaje, samostojno delo, delo v parih/skupinah.

**Learning and teaching methods:**

Lectures, practical work, individual work, work in pairs/groups.

**Načini ocenjevanja:****Delež/Weight****Assessment:**

|                                |         |                                   |
|--------------------------------|---------|-----------------------------------|
| Pisni test                     | 50,00 % | Written exam                      |
| Življenjepis (Europass)        | 10,00 % | CV (Europass)                     |
| Poslovno pismo (prošnja)       | 10,00 % | Business letter (request)         |
| Seminarska naloga              | 10,00 % | Seminar paper                     |
| Predstavitev seminarske naloge | 20,00 % | Presentation of the seminar paper |

**Reference nosilca/Lecturer's references:**

1. LUŠTEK PRESKAR, Barbara. English for specific purposes : graphic arts. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2009. II, 108 str;
2. LUŠTEK PRESKAR, Barbara. English for specific purposes : textile engineering. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2009. III, 107 str;
3. 41st International Symposium on Novelties in Textiles and 5th International Symposium on Novelties in Graphics and 45th International Congress IFKT, Ljubljana, Slovenia, 27-29 May 2010, SIMONČIČ, Barbara (urednik), HLADNIK, Aleš (urednik), PAVKO-ČUDEN, Alenka (urednik), AHTIK, Jure (urednik, grafični oblikovalec), LUŠTEK PRESKAR, Barbara (urednik), DEMŠAR, Andrej (urednik), URBAS, Raša (urednik). Symposium proceedings. Ljubljana: Faculty of Natural Sciences and Engineering, Department of Textiles, 2010. 1185 f., ilustr.;
4. KERMAUNER, Aksinja. Maus Mici fällt in die Speisekammer = Mouse Mici falls into pantry. Burgdorf: Institute of Print Technology, 2014. 24 str., ilustr.

# TEORIJA PLEMENITENJA

**Predmet:** Teorija plemenitenja  
**Course title:** Theory of finishing  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev) **Študijska smer** **Letnik** **Semestri** **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068744

**Koda učne enote na članici/UL Member course code:** 11264

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Barbara Simončič

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.  
Za pristop k izpitu je pogoj opravljen seminar.

**Prerequisites:**

Enrolment into the study year.  
For the exam, a completed seminar work is a prerequisite.

**Vsebina:**

- Barva in struktura barvil: barva snovi, kemijska struktura barvil, konvencionalna in fluorescentna barvila, optični osvetljevalci;
- Določitev koncentracije raztopine barvila, določitev koncentracije barvila na vlaknih;
- Agregacija barvila v vodni raztopini: opis procesa, vpliv dejavnikov, tehnološki pomen;
- Barvalni sistemi: razdelitev barvil in tekstilnih vlaken, interakcije med barvilom in vlaknom, razdelitev barvalnih sistemov;

**Content (Syllabus outline):**

- Colour and dye structure: colour of the material, chemical structures of the dyes, conventional and fluorescent dyes, optical brighteners;
- A determination of the concentration of the dye solution and of the dye on the fibres;
- An aggregation of dyes in aqueous solution: a description of the process, the influence of different factors, the practical importance;
- Dyeing systems: the distribution of the dyes and the fibres, the interactions between the dyes and

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| <ul style="list-style-type: none"> <li>• Sorpcija barvila na tekstilna vlakna: stopnja izčrpanja barvila, standardna afiniteta;</li> <li>• Hitrost barvanja: difuzija barvila in difuzijski koeficient, vpliv dejavnikov na hitrost barvanja;</li> <li>• Pomen omakalnih, dispergiranih in egalizirnih sredstev pri barvanju.</li> </ul> | <p>the fibres, and the distribution of the dyeing systems;</p> <ul style="list-style-type: none"> <li>• The sorption of the dyes on the textile fibres: the rate of the dye exhaustion of dyes, standard affinity;</li> <li>• The rate of dyeing: dye diffusion and the diffusion coefficient, the influence of different factors on the dyeing rate;</li> <li>• The importance of wetting, dispersing and levelling agents in the dyeing processes.</li> </ul> |
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#### Temeljna literatura in viri/Readings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• SIMONČIČ, B. Teoretične osnove barvanja. Ljubljana: Univerza v Ljubljani, Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2009, 120 str.;</li> <li>• The theory of coloration of textiles. 2. izdaja. Urednik A. Johnson. Bradford: Society of Dyers and Colourists, 1989, 552 str.;</li> <li>• BOŽIČ, D. et al. Interdisciplinarnost barve. 1. del. V znanosti. Maribor: Društvo koloristov Slovenije, 2001, 384 str.;</li> <li>• ROSEN, M. J. Surfactants and interfacial phenomena. 2. izdaja. New York: John Wiley &amp; Sons, 1989, 431 str.</li> </ul> |
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#### Cilji in kompetence:

**Cilj** je osvojiti znanja s področja teorije plemenitilnih procesov, ki predstavlja nadgradnjo temeljnih naravoslovno-tehnoloških znanj, ki so potrebna za razumevanje procesov plemenitenja in nege tekstilij.

#### Kompetence:

- Razumevanje osnovnih pojavov v barvalni kopeli, kar je podlaga za nadaljnje razumevanje tehnologije barvalnih procesov,
- Sposobnost razumevanja vpliva interakcij barvilo-vlakno in barvilo-tekstilno pomožno sredstvo na kakovost izvedbe postopka plemenitenja.

#### Objectives and competences:

**The objective** is to acquire knowledge of the theory of finishing processes, which represents an upgrade of the basic skills of natural sciences and technology that are necessary for understanding the processes of finishing and textile care.

#### Competences:

- Understanding basic phenomena in the dyeing solution, which is the basis for further understanding the technology of dyeing processes;
- Understanding the influence of dye-fibre and dye-auxiliary interactions on the quality of the finishing process.

#### Predvideni študijski rezultati:

- Znanje teoretičnih osnov merjenja barve in določitve koncentracije raztopin barvil in obarvanj;
- Razumevanje fizikalno kemijskih procesov adsorpcije barvila iz raztopine na tekstilna vlakna, mehanizme različnih barvalnih procesov in njihove zakonitosti;
- Znanje in razumevanje osnov termodinamike in kinetike barvanja.

#### Intended learning outcomes:

- Knowledge of the theoretical bases of colour measuring and the determination of the concentration of the dye solutions and the dyeings;
- Understanding the physical-chemical processes of dye adsorption from the solution to the textile fibres, the mechanisms of different dyeing processes and their legality;
- Knowledge and understanding of the thermodynamics and kinetics of dyeing.

#### Metode poučevanja in učenja:

Predavanja, – samostojna priprava seminarskega dela z javno predstavitvijo.

#### Learning and teaching methods:

Lectures, independent preparation of a seminar work with a public presentation.

#### Načini ocenjevanja:

Pisni izpit

#### Delež/Weight

70,00 %

#### Assessment:

Written exam

|                 |         |              |
|-----------------|---------|--------------|
| Seminarsko delo | 30,00 % | Seminar work |
|-----------------|---------|--------------|

**Reference nosilca/Lecturer's references:**

1. KERT, Mateja, SIMONČIČ, Barbara. The influence of nonionic surfactant structure on the thermodynamics of anionic dye-cationic surfactant interactions in ternary mixtures. *Dyes and pigments*, 2008, vol. 79, no. 1, str. 59-68;
2. SIMONČIČ, Barbara, KERT, Mateja. Influence of the chemical structure of dyes and surfactants on their interactions in binary and ternary mixture. *Dyes and pigments*, 2008, vol. 76, no. 1, str. 104-112;
3. SIMONČIČ, Barbara, ROZMAN, Veronika. Wettability of cotton fabric by aqueous solutions of surfactants with different structures. *Colloids and surfaces. A, Physicochemical and Engineering Aspects*, 2007, vol. 292, iss. 2/3, str. 236-245;
4. BRAČKO, Sabina, ŠOLAR, Alenka, FORTE-TAVČER, Petra, SIMONČIČ, Barbara. Colour constancy of vat prints on cotton fabrics. *Coloration technology*, 2009, vol. 125, no. 4, str. 222-227;
5. STAREŠINIČ, Marica, SIMONČIČ, Barbara, BRAČKO, Sabina. Using a digital camera to identify colors in urban environments. *Journal of imaging science and technology*, 2011, vol. 55, no. 6, str. 060201/1-060201/4.

# TRŽENJE TEKSTILIJ IN OBLAČIL

|                                   |                                    |
|-----------------------------------|------------------------------------|
| <b>Predmet:</b>                   | Trženje tekstilij in oblačil       |
| <b>Course title:</b>              | Marketing of textiles and clothing |
| <b>Članica nosilka/UL Member:</b> | UL NTF                             |

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

Univerzitetna koda predmeta/University course code: 0108510

Koda učne enote na članici/UL Member course code: 11145

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

Nosilec predmeta/Lecturer: Mateja Kos Koklič

Izvajalci predavanj:  
Izvajalci seminarjev:  
Izvajalci vaj:  
Izvajalci kliničnih vaj:  
Izvajalci drugih oblik:  
Izvajalci praktičnega  
usposabljanja:

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Vrsta predmeta/Course type: Izbirni/Elective

Jeziki/Languages:

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Vpis v letnik študija in izbira predmeta.

Enrolment into study year and course selection.

Vsebina:

Content (Syllabus outline):

- Pomen trženja tekstilij in oblačil v slovenskem, evropskem in svetovnem prostoru v preteklosti, sedanjosti in predviden razvoj v prihodnosti;
- Tržišča in metode njihovega raziskovanja, viri podatkov;
- Segmentacija tržišča;
- Vplivi mikro in makro okolja (gospodarske in družbene spremembe) na različne tržne segmente potrošnikov;
- Oblikovanje modnih smernic kot odraz globalne raziskave tržišča in interpretacija njihovega vpliva na različne tržne segmente potrošnikov;

- The importance of marketing of textiles and clothing in Slovenian, European and global environment in the past, the present and expected future developments;
- Markets and methods of their research;
- Market segmentation;
- The effects of micro and macro environment (economic and social changes) on various consumer market segments;
- Designing fashion trends as a reflection of global market research and interpretation of their impact on various consumer market segments;

|                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                        |
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| <ul style="list-style-type: none"> <li>• Oblikovanje trženjskega spleta novih tekstilnih in oblačilnih izdelkov;</li> <li>• Oblikovanje in upravljanje z blagovnimi znamkami tekstilij in oblačil;</li> <li>• Sodobna strokovna terminologija s področja trženja tekstilij in oblačil v slovenskem in angleškem jeziku.</li> </ul> | <ul style="list-style-type: none"> <li>• Development of marketing mix for new textile and clothing products;</li> <li>• Creating a brand of textiles and clothing collections;</li> <li>• Professional terminology in marketing of textiles and clothing in Slovenian and English language.</li> </ul> |
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### **Temeljna literatura in viri/Readings:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• KONEČNIK RUZZIER, M. Temelji trženja: Pristop k trženjskemu načinu razmišljanja v 21. stoletju. Ljubljana: Meritum, 2013;</li> <li>• KOTLER, P. Management trženja. Posušje : Mate ; Ljubljana : GV založba, 2004;</li> <li>• HINES, T. &amp; BRUCE, M. Fashion Marketing: Contemporary Issues. Oxford: Butterworth-Heinemann, 2001;</li> <li>• EASEY, M. Fashion Marketing. Oxford: Blackwell Science, 1997;</li> <li>• BOHDANOWICZ, J. &amp; CLAMP, L. Fashion Marketing. London: Routledge, 1994.</li> </ul> |
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### **Cilji in kompetence:**

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| <p><b>Cilji:</b></p> <ul style="list-style-type: none"> <li>• Razumevanje vloge in pomena trženja v procesu ustvarjanja visoke dodane vrednosti kolekcij tekstilij in oblačil.</li> </ul> <p><b>Kompetence:</b></p> <ul style="list-style-type: none"> <li>• Sposobnost aktivnega sodelovanja pri razvoju novih tekstilnih in oblačilnih izdelkov s pomočjo poznavanja potrošnikov;</li> <li>• Prenos teoretičnega strokovnega znanja s področja trženja tekstilij in oblačil v prakso.</li> </ul> | <p><b>Objectives and competences:</b></p> <p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>• Understanding the role of marketing in the process of creating high value-added textile and clothing collections.</li> </ul> <p><b>Competencies:</b></p> <ul style="list-style-type: none"> <li>• The ability to actively participate in the development of new textile and apparel products with the help of knowledge about consumers;</li> <li>• Transfer of theoretical expertise from the field of marketing of textiles and clothing into practice.</li> </ul> |
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### **Predvideni študijski rezultati:**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p><b>Znanje in razumevanje:</b></p> <ul style="list-style-type: none"> <li>• Razumevanje pomena tržnih raziskav v tržno usmerjenem tekstilnem/oblačilnem podjetju;</li> <li>• Razumevanje pomena segmentacije tržišča pri oblikovanju novih tekstilnih/oblačilnih kolekcij;</li> <li>• Razumevanje in interpretacija globalnih modnih smernic in njihov vpliv na različne ciljne skupine;</li> <li>• Razumevanje in analiziranje vplivov mikro in makro okolja na nakupno vedenje ciljnih skupin potrošnikov;</li> <li>• Razumevanje bodočih potreb in želja potrošnikov v povezavi z razvojem trženjskega spleta novih tekstilnih/oblačilnih izdelkov, znanj in storitev na tržišču;</li> <li>• Organizacija, vodenje in izvedba tržnih raziskav s področij analize konkurence, segmentacije tržišča, razvoja trženjskega spleta za izbrane tržne segmente, pomembnih za razumevanje potreb in želja izbranih ciljnih skupin potrošnikov;;</li> <li>• Obvladovanje sodobne strokovne terminologije s področja trženja tekstilij in oblačil.</li> </ul> | <p><b>Intended learning outcomes:</b></p> <p><b>Knowledge and understanding:</b></p> <ul style="list-style-type: none"> <li>• Understanding the role of market research in market-oriented textile / clothing company;</li> <li>• Understanding the importance of market segmentation in developing new textile / clothing collections;</li> <li>• Understanding and interpretation of global fashion trends and their impact on various target groups;</li> <li>• Understanding and analyzing the effects of micro and macro environment on buying behavior of target groups;</li> <li>• Understanding of future needs and desires of consumers with respect to the development of marketing mix of new textile / apparel products, knowledge and services in the marketplace;</li> <li>• Organization, management and execution of market research in the areas of market segmentation, analysis of the impact of the environment, development of marketing mix for selected market segments etc. relevant to understanding the needs and desires of consumer target groups;</li> </ul> |
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|  |                                                                                                                                                          |
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|  | <ul style="list-style-type: none"> <li>• Mastery of the current professional terminology from the area of marketing of textiles and clothing.</li> </ul> |
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**Metode poučevanja in učenja:**

Predavanja, seminarsko delo, skupinsko delo.

**Learning and teaching methods:**

Lectures, Seminar work, team work.

**Načini ocenjevanja:**
**Delež/Weight**
**Assessment:**

|                              |         |                         |
|------------------------------|---------|-------------------------|
| Pisni izpit                  | 50,00 % | Written exam            |
| Individualno seminarsko delo | 30,00 % | Individual seminar work |
| Skupinsko delo               | 20,00 % | Team work 20            |

**Reference nosilca/Lecturer's references:**

1. KOS KOKLIČ, Mateja, VIDA, Irena. The interplay of the drivers and deterrents of leisure counterfeit purchase intentions. Journal of Business Economics and Management, 2015. doi: 10.3846/16111699.2014.994184 (članek sprejet v objavo/ paper accepted for publication);
2. KOS KOKLIČ, Mateja, VIDA, Irena, BAJDE, Domen, CULIBERG, Barbara. The study of perceived adverse effects of digital piracy and involvement: insights from adult. Behaviour & information technology, 2014, vol. 33, no. 3, str. 225-236;
3. KOS KOKLIČ, Mateja, KUKAR-KINNEY, Monika, VIDA, Irena. Three-level mechanism of consumer digital piracy: development and cross-cultural validation. Journal of business ethics, 2014, doi: 10.1007/s10551-014-2075-1;
4. VIDA, Irena, KOS KOKLIČ, Mateja, KUKAR-KINNEY, Monika, PENZ, Elfriede. Predicting consumer digital piracy behavior : the role of rationalization and perceived consequences. Journal of research in interactive marketing, 2012, vol. 6, iss. 4, str. 298-313;
5. KOS KOKLIČ, Mateja, VIDA, Irena. Consumer strategic decision making and choice process : prefabricated house purchase. International Journal of Consumer Studies, Nov. 2011, vol. 35, iss. 6, str. 634-643.

# UPRAVLJANJE PROIZVODNJE

**Predmet:** Upravljanje proizvodnje  
**Course title:** Production management  
**Članica nosilka/UL Member:** UL NTF

**Študijski programi in stopnja** (ni študijev)      **Študijska smer**      **Letnik**      **Semestri**      **Izbirnost**

**Univerzitetna koda predmeta/University course code:** 0068710

**Koda učne enote na članici/UL Member course code:** 10084

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Andrej Demšar

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

- Vpis v letnik študija in izbira predmeta.
- Pogoj za opravljanje izpita sta pozitivno opravljena seminar in predstavitev seminarja o poljubno izbrani temi s področja.

**Prerequisites:**

- Enrolment into study year and selecting the course.
- A prerequisite for access to the exam are positively evaluated seminar paper and its presentation on a topic from the field.

**Vsebina:**

**Predavanja** pri predmetu se pričnejo s splošnim pregledom slovenske in evropske tekstilne in konfekcijske industrije ter trendi, ki jim sledimo. Predavanja se nadalje delijo na dva dela:

- 1.del predavanj (ca 60 %) vključuje podajanje snovi iz področij organiziranja in vodenja proizvodne funkcije: priprava dela (cilji in področja tehnološke in operativne priprave dela, standardizacija tehnološkega procesa,

**Content (Syllabus outline):**

Lectures in the course start with a general overview of the Slovenian and European textile and clothing industry and the trends we follow.

Lectures are further divided into two parts:

- The first part of the lectures (ca. 60%) include presentations from the fields of organizing and managing the production function: work preparation (objectives and fields of technological

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| <p>nomenklatura in normativi materiala, proces planiranja proizvodnega procesa in kapacitet (MRP), proizvodnja (transport, skladiščenje, kontrola proizvodnje), pomožne dejavnosti (vzdrževanje); primer iz prakse (vabljeni predavatelj).</p> <ul style="list-style-type: none"> <li>2. del predavanj (ca 40 %) se posveča humanizaciji dela, pri čemer se dotaknejo predvsem optimalnemu organiziranju dela in delovnih mest ter normiranju in metodam, ki jih v ta namen uporabljamo.</li> </ul> <p><b>Seminarske naloge</b> so skupinske in se razlikujejo po tematikah in področjih. Študenti pri vsaki seminarski nalogi izvedejo ustrezno praktično delo, ki ga lahko koristno ovrednotijo v okviru celotnega razreda s pomočjo ustreznih metod.</p> | <p>and operational preparation of work, standardization of the technological process, nomenclature and material norms, process of planning of the production process and capacities (MRP), production (transport, storage, production control), auxiliary activities (maintenance), case study (invited lecture).</p> <ul style="list-style-type: none"> <li>The second part of the lectures (about 40%) focuses on the humanization of work, focusing primarily on the optimal organization of work and jobs and on the norms and methods used for this purpose.</li> </ul> <p><b>Seminar assignments</b> are organized for groups of students and vary in subjects and fields. Students carry out the appropriate practical work with each seminar task, which can be usefully evaluated within the entire class using the appropriate methods.</p> |
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### Temeljna literatura in viri/Readings:

- MOŽINA, S., et al. Management. Radovljica : Didakta, 1994; LIPIČNIK, B. Organiziranje podjetja. Ljubljana : Ekonomska fakulteta, 1999.
- MIHELČIČ, M. Temelji organizacijske teorije in uporaba organizacijskih načel v proizvodni funkciji. Ljubljana : Fakulteta za elektrotehniko, 1984.
- REBERNIK, M. Ekonomika podjetja. Ljubljana : Gospodarski vestnik, 1997.
- POLAJNAR, A. Upravljanje proizvodnje. Maribor : Ekonomsko-poslovna fakulteta, 1994.
- KAJZER, Š. Proizvodni management : proizvodnja kot konkurenčni dejavnik podjetja. Maribor : Ekonomsko-poslovna fakulteta, 1998.
- KALTNEKAR, Z. Organizacija delovnih procesov. Kranj : Moderna organizacija, 1996.
- KALTNEKAR, Z. Materialno poslovanje v industrijskem podjetju. Kranj : Moderna organizacija, 1974.
- RANT, M. Vodenje proizvodnih procesov. Kranj : Moderna organizacija, 1991.
- HILL, T. Operations Management : Strategic Context and Managerial Analysis. Basingstoke : MacMillan Business, 2000.

Literatura je dosegljiva v knjižnici Oddelka za tekstilstvo, grafiko in oblikovanje NTF. / The literature is available in the Library of the Textile, Graphic and Design Department of the NTF.

### Cilji in kompetence:

**Cilji predmeta** so študentu nuditi znanje, s katerim bo lahko ustrezno deloval v okolju proizvodnega sistema. Pri tem mora poznati elemente sistema, njihove medsebojne relacije, nadalje možnosti reorganiziranja / optimiziranja sistema ter ovrednotenje uvedenih rešitev / investicij. Vsebina predmeta izpolnjuje želene cilje.

#### Predmetno specifične kompetence:

- Sposobnost nadzorovanja, analiziranja in vodenja proizvodnega procesa;
- Sposobnost načrtovanja in planiranja proizvodnega procesa z uporabo metod mrežnega planiranja;
- Sposobnost spoznavanja nujnosti in izvajanja investicij v konfekcijskem podjetju;
- Sposobnost zaznavanja in vrednotenja stroškov, nastalih v delovnem procesu;
- Razumevanje in sposobnost reševanje konkretnih delovnih problemov z uporabo strokovnih metod

### Objectives and competences:

**The course aims** to provide the student with the knowledge that will enable him to function properly in the production system environment. In doing so, one must know the elements of the system, their mutual relations, further possibilities of reorganization / optimization of the system and the evaluation of the solutions / investments introduced. The content of the course meets the desired goals.

#### Subject-specific competences:

- Ability to monitor, analyze and manage the production process;
- Ability to design and plan the production process using network planning methods;
- Ability to learn about the necessity and implementation of investments in a clothing company;
- Ability to perceive and evaluate costs incurred in the work process;

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <p>kot npr. SWOT analiza, vrednostna analiza, sistemizacija in vrednotenje zahtevnosti dela itd.;</p> <ul style="list-style-type: none"> <li>• Spodobnost uporabe temeljnega znanja pri vodenju delovnega procesa;</li> <li>• Razvoj spretnosti pri naartovanju in izraunavanju tehnoloških zahtev izdelkov in storitev;</li> <li>• Upoštevanje in uvajanje humanizacije dela v proizvodni proces;</li> <li>• Poznavanje standardov in zakonov varstva pri delu;</li> <li>• Vodenje projektnega tima v proizvodnji.</li> </ul> | <ul style="list-style-type: none"> <li>• Understanding and ability to solve concrete work problems using professional methods such as SWOT analysis, value analysis, systemization and evaluation of the complexity of work, etc .;</li> <li>• Ability to apply basic knowledge in the management of the work process;</li> <li>• Developing skills in planning and calculating the technological requirements of products and services;</li> <li>• Consideration and introduction of work humanization to the production process;</li> <li>• Knowledge of standards and laws on occupational safety;</li> </ul> <p>Managing the project team in production.</p> |
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### **Predvideni študijski rezultati:**

#### **Znanje in razumevanje:**

- Ima celovit pogled na stanje in trende v konfekcijski dejavnosti na slovenskem in evropskem (tudi svetovnem) trgu;
- Pozna vrste in načine organiziranja proizvodnih sistemov;
- Pridobi znanje s področja vodenja in planiranja proizvodnih sistemov;
- Pozna metode za spremljanje proizvodnega procesa;
- Pozna pomen posameznih proizvodnih podfunkcij ter njih vpliv na lastno ceno izdelka;
- Zna organizirati skupinsko delo;
- Pridobi znanje s področja humanega organiziranja dela in delovnih mest, pri čemer to organiziranje sledi standardom in predpisom s področja varstva pri delu;
- Razume pomen in vlogo posameznih podfunkcij proizvodne funkcije;
- Razume pomen vodenja in sledljivosti proizvodnega procesa;
- Razume pomen ustrezno vodene dokumentacije;
- Razume pomen skupinskega dela;
- Razume pomen standardizacije, tipizacije ter sistematizacije v proizvodnem procesu;
- Razume pomen humanizacije dela;
- Razume relacije in vplive, ki vladajo v delovnih sistemih.

#### **Uporaba:**

- S pridobljenim znanjem zna načrtovati in voditi proizvodnjo; zna optimizirati proizvodni proces in temu ustrezne elemente.
- Pri svojem delu se ozira na optimalno in delavcem prijazno proizvodnjo.

### **Intended learning outcomes:**

#### **Knowledge and understanding:**

- Has a holistic view of the situation and trends in ready-made clothing on the Slovenian and European (including the global) market;
- He knows the types and ways of organizing production systems;
- To gain knowledge in the field of production planning and planning;
- Late methods for monitoring the production process;
- Knows the importance of individual production subfunctions and their impact on the price of the product;
- Can organize group work;
- To gain knowledge in the field of human organization of work and jobs, where this organization follows the standards and regulations in the field of occupational safety;
- Understands the importance and role of individual product function sub-functions;
- Understands the importance of the management and traceability of the production process;
- Understands the importance of properly managed documentation;
- Understands the importance of teamwork;
- Understands the importance of standardization, typing and systematization in the production process;
- Understands the importance of humanization of work;
- Understands the relations and influences that govern the work systems.

#### **Application:**

- With the acquired knowledge, he can design and manage production; can optimize the production process and the relevant elements.
- In his work, he looks at optimal and labor-friendly production.

### **Metode poučevanja in učenja:**

### **Learning and teaching methods:**

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| <ul style="list-style-type: none"> <li>• Predmet je sestavljen iz predavanj in seminarских nalog.</li> <li>• Predavanja (multimedijske prezentacije) nudijo teoretične osnove za vaje in seminarske naloge;</li> <li>• V sklopu seminarja se izvajajo skupinske seminarske naloge (do max 4 člani skupine), ki so obogatene z ustreznim raziskovalnim in praktičnim delom;</li> <li>• V okviru predmeta se izvajajo strokovni obiski podjetij; namen obiskov je spoznavanje različnih vrst organiziranosti proizvodnega procesa;</li> <li>• V okviru predmeta se izvede eno vabljenno predavanje strokovnjaka iz industrije.</li> </ul> | <ul style="list-style-type: none"> <li>• Lectures and seminar work.</li> <li>• Lectures (multimedia presentations) provide theoretical basis for exercises and seminar work;</li> <li>• Within the seminar, group seminar work (up to max 4 members of the group) is carried out, enriched with appropriate research and practical work;</li> <li>• Within the course, professional visits of companies are carried out; the purpose of the visits is to learn about the different types of organization of the production process;</li> <li>• Within the course, one invited lecture by an expert from the industry is carried out.</li> </ul> |
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| <b>Načini ocenjevanja:</b> | <b>Delež/Weight</b> | <b>Assessment:</b> |
|----------------------------|---------------------|--------------------|
| Pisni izpit                | 70,00 %             | Written exam       |
| Seminarska naloga          | 30,00 %             | Seminar work       |

#### **Reference nosilca/Lecturer's references:**

1. ŠEHIĆ, Alisa, VASILJEVIĆ, Jelena, JORDANOV, Igor, DEMŠAR, Andrej, MEDVED, Jože, JERMAN, Ivan, ČOLOVIĆ, Marija, HEWITT, Fiona, HULL, T. Richard, SIMONČIĆ, Barbara. Influence of N-, P- and Si-based flame retardant mixtures on flammability, thermal behavior and mechanical properties of PA6 composite fibers. *Fibers and polymers*, ISSN 1229-9197, 2018, vol. 18, no. 6, str. 1194-1206.
2. KADOGLU, Hüseyin, DIMITROVSKI, Krste, MARMARALI, Arzu, ÇELİK, Pinar, BAŞAL BAYRAKTAR, Güldemet, UTE, Tuba Badez, ERTEKIN, Gözde, DEMŠAR, Andrej, KOSTAJNŠEK, Klara. Investigation of the characteristics of elasticised woven fabric by using PBT filament yarns. *AUTEX research journal*, ISSN 1470-9589. [Print ed.], 2016, vol. 16, no. 2, str. 109-117.
3. ŠEHIĆ, Alisa, JORDANOV, Igor, DEMŠAR, Andrej, VASILJEVIĆ, Jelena, BUKOŠEK, Vili, NAGLIČ, Iztok, MEDVED, Jože, SIMONČIĆ, Barbara. Influence of flame retardant additive on thermal behaviour and stability of fibre-forming polyamide 6. *Tekstilec : glasilo slovenskih tekstilcev*, ISSN 0351-3386. [Tiskana izd.], 2016, vol. 59, no. 2, str. 149-155.
4. BRODA, Jan, SLUSARCZYK, Czeslaw, FABIA, Janusz, DEMŠAR, Andrej. Formation and properties of polypropylene/stearic acid composite fibers. *Textile research journal*, ISSN 0040-5175, 2016, vol. 86, no. 1, str. 64-71.
5. KAVKLER, Katja, DEMŠAR, Andrej. Application of FTIR and Raman spectroscopy to qualitative analysis of structural changes in cellulosic fibres = Uporaba FTIR in ramanske spektroskopije pri kvalitativni analizi strukturnih sprememb celuloznih vlaken. *Tekstilec*, ISSN 0351-3386, 2012, letn. 55, št. 1, str. 19-44, ilustr. [COBISS.SI-ID 2727792].

## USNJE IN KRZNO

**Predmet:** Usnje in krzno  
**Course title:** Leather and fur  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068711  
**Koda učne enote na članici/UL Member course code:** 11150

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 45                      | 15                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Marija Gorjanc

**Izvajalci predavanj:**  
**Izvajalci seminarjev:**  
**Izvajalci vaj:**  
**Izvajalci kliničnih vaj:**  
**Izvajalci drugih oblik:**  
**Izvajalci praktičnega usposabljanja:**

**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

**Prerequisites:**

Vpis v študij letnika in izbira predmeta.

Enrolment into study year and choice of the course.

**Vsebina:**

**Content (Syllabus outline):**

- Zgodovina in prihodnost usnja in krzna;
- Trgovina z usnjem in krznom;
- Viri kož za izdelavo usnja in krzna;
- Vrste in značilnosti naravnega in umetnega usnja;
- Vrste in značilnosti naravnega in umetnega krzna;
- Aplikativne lastnosti usnja;
- Aplikativne lastnosti krzna;
- Označevanje usnja in krzna ter zakonske omejitve;
- Vzdrževanje in nega usnja ter krzna.

- History and future of leather and fur;
- Trading of leather and fur;
- Sources of skins to produce leather and fur;
- Types and characteristics of natural and artificial leather;
- Types and characteristics of natural and artificial furs;
- Applied properties of leather;
- Applied properties of fur;
- Labelling of leather and fur and regulatory constraints;
- Maintenance and care of leather and fur.

**Temeljna literatura in viri/Readings:**

- Hand book of leather and leather products technology, 2007, Engineers India Research Instt.
- COVINGTON, A.D., COVINGTON, T. Tanning Chemistry: The Science of Leather, 2009, Royal Society of Chemistry.
- CHURCHILL, J. The Complete Book of Tanning Skins and Furs, 1985, Stackpole Books.
- The journal of the American leather chemists association.
- IFTF - International fur trade federation (<http://www.wearefur.com/>, <http://www.originassured.com/>, <http://www.fur-style.com/>).
- CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora (<http://www.cites.org/>).
- LEATHER INTERNATIONAL – SAUER REPORT (<http://www.leathernet.com/>, <http://www.thesauerreport.com/>).
- IULTCS - International Union Of Leather Technologists And Chemists Societies (<http://www.iultcs.org/>).

**Cilji in kompetence:**

**Cilj** je seznaniti študenta o virih, vrstah, pridobivanju in uporabnosti naravnega in umetnega usnja ter krzna, s poudarkom na materialu, uporabnosti, vzdrževanju in zakonskih omejitvah.

**Kompetence:**

- Razumevanje različnosti ekonomije in kultur uporabe usnja in krzna;
- Poznavanje virov usnja in krzna;
- Prepoznavanje naravnega in umetnega usnja ter krzna;
- Znanje o uporabnosti usnja in krzna;
- Poznavanje strokovne terminologije s področja usnjarstva in krznarstva v slovenskem in vsaj enem svetovnem tujem jeziku.

**Objectives and competences:**

**The objective** is teach students about the sources, types, acquisition and utility of natural and artificial leather and fur, with a focus on their materials, usability, maintenance and legal restrictions.

**Competences:**

- Understanding the diversity of economic and cultural uses of leather and fur;
- Learning the sources of leather and fur;
- Identifying natural and artificial leather and fur;
- Learning about the usefulness of leather and fur;
- Acquiring technical terminology in the field of leather and fur in Slovenian and at least one world foreign language.

**Predvideni študijski rezultati:**

Študent pridobi osnovna znanja o virih, vrstah, značilnostih, negi, vzdrževanju in označevanju naravnega in umetnega usnja ter krzna, o aplikativnih lastnostih v povezavi s tekstilijami, o trgovanju z usnjem in krznom ter zakonskih omejitvah.

**Intended learning outcomes:**

Students will acquire basic knowledge of the sources, types, characteristics, care, maintenance and identification of natural and artificial leather and fur and of applied properties in relation to textiles, the trading of leather and fur and statutory restrictions.

**Metode poučevanja in učenja:**

Predavanja, seminar, delavnice, ekskurzije.

**Learning and teaching methods:**

Lectures, seminars, workshops, excursions.

**Načini ocenjevanja:**

Pisni izpit

**Delež/Weight**

60,00 %

**Assessment:**

Written exam

Opravljen seminar

40,00 %

Completed seminar

**Reference nosilca/Lecturer's references:**

1. GORJANC, M., JAZBEC, K., ŠALA, M., ZAPLOTNIK, R., VESEL, A., MOZETIČ, M.. Creating cellulose fibres with excellent UV protective properties using moist CF4 plasma and ZnO nanoparticles. Cellulose, ISSN 0969-0239, 2014, vol. 21, iss. 4, str. 3007-3021;
2. GORJANC, M., JAZBEC, K., ZAPLOTNIK, R. Tailoring surface morphology of cotton fibers using mild tetrafluoromethane plasma treatment. The journal of The Textile Institute, ISSN 0040-5000, 2014, vol. 105, issue 11, str. 1178-1185;
3. DOVC, K., GORJANC, M., KERT, M.. Vpliv dodatka tenzida na adsorpcijo C. I. Acid Red 14 na poliamidno 6 snukovno pletivo = Influence of surfactant addition on adsorption of C. I. Acid Red 14 on polyamide 6 knitwear. Tekstilec, ISSN 0351-3386, 2013, letn. 56, št. 4, str. 312-322.

4. GORJANC, M., KOVAČ, F., GORENŠEK, M.. The influence of vat dyeing on the adsorption of synthesized colloidal silver onto cotton fabrics. Textile research journal, ISSN 0040-5175, 2012, vol. 82, no. 1, str. 62-69;
5. GORENŠEK, M., GORJANC, M., BUKOŠEK, V., KOVAČ, J., JOVANČIĆ, P., MIHAILOVIĆ, D. Functionalization of PET fabrics by corona and nano silver. Tex. res. j., 2010, vol. 80, no. 3, str. 253-262.
6. GORENŠEK, M., GORJANC, M., BUKOŠEK, V., KOVAČ, J., PETROVIĆ, Z., PUČ, N.. Functionalization of polyester fabric by Ar/N<sub>2</sub> plasma and silver. Tex. res. j., 2010, vol. 80, no. 16, str. 1633-1642.

# VLAKNA

**Predmet:** Vlakna  
**Course title:** Fibres  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068733

**Koda učne enote na članici/UL Member course code:** 11036

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 90                      | 0                   | 30                 | 0                                       | 0                                                   | 120                                               | 8    |

**Nosilec predmeta/Lecturer:** Tatjana Rijavec

**Izvajalci predavanj:**

**Izvajalci seminarjev:**

**Izvajalci vaj:**

**Izvajalci kliničnih vaj:**

**Izvajalci drugih oblik:**

**Izvajalci praktičnega  
usposabljanja:**

**Vrsta predmeta/Course type:** Obvezni/Compulsory

**Jeziki/Languages:**

Predavanja/Lectures: Angleščina, Slovenščina

Vaje/Tutorial: Angleščina, Slovenščina

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija.

**Prerequisites:**

Enrolment into study year.

**Vsebina:**

**Predavanja:**

- Definicija in razvrstitev vlaken;
- Postopki pridobivanja kemičnih vlaken;
- Vlaknotvorni polimeri (polimerizacije: splošno, kopolimeri, sinteza celuloze, keratina, fibroina in sintetičnih vlaknotvornih polimerov);
- Tvorba nadmolekulske strukture vlaken;
- Opredelitev geometrijskih, kemičnih in fizikalnih lastnosti vlaken;
- Pridobivanje, morfologija in lastnosti pomembnih naravnih (bombaž, lan, konoplja, volna, fine dlake, svila) in kemičnih vlaken (viskozna, liocelna, acetatna, poliestrska, poliamidna,

**Content (Syllabus outline):**

**Lectures:**

- The definition and classification of fibres;
- The preparation of chemical fibres;
- Fibre-forming polymers (polymerisation: generally, copolymers, the synthesis of cellulose, keratin, fibroin and synthetic polymers);
- The formation of fibre's supramolecular structure;
- A fibre's geometrical, chemical and physical properties;
- The production, morphology and properties of important natural (cotton, flax, hemp, wool, fine hairs, silk) and man-made fibres (viscose, lyocel,

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>poliolefinna, poliakrilonitrilna, modakrilna in elastomerna);</p> <ul style="list-style-type: none"> <li>• Modifikacije vlaken (profilirana in votla vlakna, dvokomponentna, mikrovlakna, nanovlakna).</li> </ul> <p><b>Vaje:</b></p> <ul style="list-style-type: none"> <li>• Razpoznavanje vlaken;</li> <li>• Oblikovanje vlaken iz taline (konstitutivna enačba, masni pretok, sile in nestabilnosti v predilni liniji) in študij tvorbe strukture vlaken s spremljanjem lastnosti neraztezanih, raztezanih in fiksiranih vlaken;</li> <li>• Merjenje tališča, orientacije, kristaliničnosti in gostote vlaken.</li> </ul> | <p>acetate, polyester, polyamide, polyolefin, polyacrylonitrile, modacrylic and elastomeric);</p> <ul style="list-style-type: none"> <li>• The modification of a fibre's properties (profiled, hollow fibres, bicomponents, microfibres, nanofibres).</li> </ul> <p><b>Tutorial:</b></p> <ul style="list-style-type: none"> <li>• The identification of fibres: longitudinal appearance, chemical composition;</li> <li>• The melt spinning process (constitutive equation, mass flow, force and instability in the spinning line) and the study of the formation of a fibre's structure by monitoring the properties of the undrawn, stretched and fixed fibres;</li> <li>• The melting temperature, orientation, crystallinity and density of fibres.</li> </ul> |
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### **Temeljna literatura in viri/Readings:**

- RIJAVEC, Tatjana. Tekstilne surovine, Osnove. Ponatis. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2014;
- RIJAVEC, Tatjana, GREGOR-SVETEC, Diana, DEMŠAR, Andrej. Razpoznavanje vlaken : laboratorijske vaje. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, [2009]. 44 f.;
- BUKOŠEK, Vili, DEMŠAR, Andrej. Vlakna : navodila k vajam 2. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2010. 65 str.; Handbook of Fiber Chemistry. Eds. M. LEWIN in E. M. PEARCE. 3th ed. Boca raton, London, New York : CRC press, Taylor & Francis Group, 2007, 1044 str.;
- Handbook of textile fibre structure. Vol. 1, Fundamentals and manufactured polymer fibres / edited by S. J. Eichhorn ... [et al.] [Manchester] : Textile Institute ; Boca Raton [etc.] : CRC Press; Cambridge : Woodhead Publishing, 2009;
- ČUNKO, R. and ANDRASSY, M. Vlakna. Zagreb : Zrinski, 2005;
- Izbrani članki iz domačih in tujih strokovnih revij, dostopnih v knjižnici Oddelka za tekstilstvo NTF in v elektronskih revijah ter spletne strani / Selected articles from national and foreign professional magazines, available in the Library of the NTF, Department of textiles and in electronic journals and websites.

### **Cilji in kompetence:**

- S pridobljenim znanjem je študent sposoben in zmožen reševati enostavnejše praktične probleme v zvezi s spremembo lastnosti tekstilnih vlaken, zna poiskati in pojasniti napake, ki so posledica nepravilnega vodenja postopka. Zna kvalitativno ugotoviti tekstilna vlakna v izdelku. Zna tudi pravilno izbrati vrsto vlaken za določen končni izdelek z vnaprej načrtovanimi lastnostmi;
- Razumevanje teoretičnih osnov tekstilnih vlaken skupaj s pridobljenimi praktičnimi izkušnjami omogočajo pravilno strokovno presojo, optimalno vodenje tehnoloških postopkov kakor tudi sposobnost načrtovanja novih izdelkov;
- Pri vajah se študent nauči mikroskopiranja in seznani z drugimi sodobnimi fizikalnimi metodami, ki jih lahko uporabi pri strokovnem, analitskem, ali razvojnem delu kasneje v praksi.

### **Objectives and competences:**

- With the above knowledge, the student will be able and able to solve simple practical problems related to the modification of the properties of textile fibres and to find and explain the errors that result from an improper management process. The student will learn how to qualitatively identify textile fibres in the product and how to choose the correct type of textile fibre for a specific end product with pre-planned properties;
- The student will develop an understanding of the theoretical bases of textile fibres, together with the achieved practical experience enabling the student to exercise professional judgment, an optimal control of technological processes and the ability to design new products;
- In the tutorial, the student will learn how to use microscope and will become familiar with other modern physical methods that can be used in technical, analytical, or developmental work later in practice.

**Predvideni študijski rezultati:**

Študent pridobi sistematično znanje o tekstilnih vlaknih. To vključuje poznavanje:

- Molekulske in fizikalne strukture tekstilnih vlaken;
- Heterogenosti tekstilnih vlaken;
- Vplivov različnih dejavnikov na spreminjanje lastnosti vlaken;
- Različnih fizikalnih in kemičnih modifikacij tekstilnih vlaken;
- Tekstilnih vlaken kot metastabilnih sistemov, ki se spreminjajo glede na dejavnike v okolju;
- Poznavanje strukture in lastnosti tržno pomembnih tekstilnih vlaken.

**Intended learning outcomes:**

The student will achieve a systematic knowledge of textile fibres, including:

- The molecular and physical structure of textile fibres;
- The heterogeneity of textile fibres;
- T- The influences of various factors in changing the characteristics of textile fibres;
- The various physical and chemical modifications of textile fibres;
- Fibres as metastable systems, which vary according to environmental factors;
- Knowledge of the structure and properties of commercially important textile fibres.

**Metode poučevanja in učenja:**

Predavanja.

**Learning and teaching methods:**

Lectures.

**Načini ocenjevanja:**

Pisni in ustni izpit

**Delež/Weight**

100,00 %

**Assessment:**

Written and oral examination

**Reference nosilca/Lecturer's references:**

1. RIJAVEC, Tatjana. Tekstilne surovine, Osnove. Ponatis. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2014. 124, [17] str., ilustr. ISBN 978-961-6045-13-1;
2. RIJAVEC, Tatjana. Tekstilne surovine : visokošolski strokovni študij Proizvodnja tekstilij in oblačil : univerzitetni študij Oblikovanje tekstilij in oblačil. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2013. 212 str., ilustr;
3. RIJAVEC, Tatjana, ZUPIN, Živa. Soybean protein fibres (SPF). V: KREZHOVA, Dora (ur.). Recent trends for enhancing the diversity and quality of soybean products. Rijeka: InTech, 2011, str. [501]-522.<http://www.intechopen.com/articles/show/title/soybean-protein-fibres-spf;>
4. RIJAVEC, Tatjana, GREGOR-SVETEC, Diana, DEMŠAR, Andrej. Razpoznavanje vlaken : laboratorijske vaje. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, [2009]. 44 f., ilustr.
5. RIJAVEC, Tatjana. Vpliv votlosti kapoka na sposobnost zadrževanja tekočin = Influence of kapok hollowness on its liquid retention capacity. Tekstilec, ISSN 0351-3386, 2009, letn. 52, št. 10/12, str. 270-283, ilustr.;
6. BUKOŠEK, Vili, RIJAVEC, Tatjana. Morfologija i struktura vlakana - vlakna visokih svojstava = Fibre morphology and structure - high performance fibres = Faser - Morphologie und Struktur - Hochleistungsfasern. Tekstil, ISSN 0492-5882, 2006, vol. 55, no. 3, str. 135-146;
7. RIJAVEC, Tatjana, ŠLJUKA, Urška. Lastnosti novih regeneriranih celuloznih vlaken Lenpur = Properties of new Lenpur regenerated cellulose fibres. Tekstilec, ISSN 0351-3386, 2003, vol. 46, no. 9/10, str. 263-268;
8. RIJAVEC, Tatjana, JERONČIČ, Jasna. Volna avtohtone bovške pasme ovac = Wool of autochthonic bovška sheep breed. Tekstilec, ISSN 0351-3386, 2002, letn. 45, št. 1/2, str. 5-14;
9. RIJAVEC, Tatjana. Delovanje sončne svetlobe na vlakna : absorpcija svetlobe, emisijski pojavi in svetlobna obstojnost = Effect of sun-sky radiation on fibres : light absorption, emission phenomena and light-fastness. Tekstilec, ISSN 0351-3386, 2000, vol. 43, no. 3/4, str. 86-102.

# VODENJE KAKOVOSTI

**Predmet:** Vodenje kakovosti  
**Course title:** Quality management  
**Članica nosilka/UL Member:** UL NTF

| Študijski programi in stopnja<br>(ni študijev) | Študijska smer | Letnik | Semestri | Izbirnost |
|------------------------------------------------|----------------|--------|----------|-----------|
|------------------------------------------------|----------------|--------|----------|-----------|

**Univerzitetna koda predmeta/University course code:** 0068712

**Koda učne enote na članici/UL Member course code:** 11311

| Predavanja<br>/Lectures | Seminar<br>/Seminar | Vaje<br>/Tutorials | Klinične vaje<br>/Clinical<br>tutorials | Druge oblike<br>študija<br>/Other forms<br>of study | Samostojno<br>delo<br>/Individual<br>student work | ECTS |
|-------------------------|---------------------|--------------------|-----------------------------------------|-----------------------------------------------------|---------------------------------------------------|------|
| 30                      | 30                  | 0                  | 0                                       | 0                                                   | 60                                                | 4    |

**Nosilec predmeta/Lecturer:** Andrej Demšar

Izvajalci predavanj:  
 Izvajalci seminarjev:  
 Izvajalci vaj:  
 Izvajalci kliničnih vaj:  
 Izvajalci drugih oblik:  
 Izvajalci praktičnega  
 usposabljanja:

**Vrsta predmeta/Course type:** Izbirni/Elective

**Jeziki/Languages:**

|                      |                         |
|----------------------|-------------------------|
| Predavanja/Lectures: | Angleščina, Slovenščina |
| Vaje/Tutorial:       | Angleščina, Slovenščina |

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

Vpis v letnik študija in izbira predmeta.

**Prerequisites:**

Enrolment into study year and selecting the course.

**Vsebina:**

- Osnovni pojmi in definicije;
- Pomen vodenja kakovosti z vidika svetovne konkurenčnosti;
- Značilnosti sistemov vodenja kakovosti za mala in velika podjetja;
- Zgodovinski pregled sistemov vodenja kakovosti od pregledovanja do celovitega vodenja kakovosti. Najpomembnejši teoretiki na področju vodenja kakovosti (Juran, Deming, Garvin, Crosby, Conti, Ishikava, Taguchi in drugi);
- Razvoj standardov za vodenje kakovosti. Struktura standardov skupine ISO 9000. Pregled zahtev standarda ISO 9001:2000. Presojanje in

**Content (Syllabus outline):**

- Basic terms and definitions;
- Meaning of quality management from the viewpoint of world competition;
- Characteristics of quality management systems for small and large companies;
- Historical overview of quality management systems from inspections to total quality management. Important scientists in the field of quality management (Juran, Deming, Garvin, Crosby, Conti, Ishikava, Taguchi and others);
- Development of quality management standardisation. Structure of ISO 9000 standardisation. Overview of ISO 9001:2000

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>certificiranje sistemov kakovosti po standardu ISO 9001;</p> <ul style="list-style-type: none"> <li>• Pregled osnovnih metod in tehnik na področju vodenja kakovosti (osnovne tehnike statistične analize, statistična procesna kontrola, načrtovanje in analiza eksperimentov, tehnike, ki se uporabljajo v procesu stalnih izboljšav kakovosti);</li> <li>• Ekonomika kakovosti;</li> <li>• Celovito vodenje kakovosti;</li> <li>• Samoocenjevanje in nagrade za kakovost.</li> </ul> | <p>standard requirements. Certification of quality systems according to ISO 9001;</p> <ul style="list-style-type: none"> <li>• Overview of basic methods and techniques in the field of quality management (basic techniques of statistical analysis, statistical process control, design of experiments, techniques for constant quality improvements.</li> <li>• Economics of quality.</li> <li>• Total quality management.</li> <li>• Self-evaluation and awards for quality.</li> </ul> |
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### Temeljna literatura in viri/Readings:

- EVANS, J. R. Total Quality : Management, Organization, and Strategy. Mason, OH : Thomson/South-Western, 2003;
- CONTI, T. Samoocenjevanje družb. Ljubljana : DZS, 1999;
- LOGOTHETIS, N. Managing for Total Quality : from Deming to Taguchi and SPC. New York [etc.] : Prentice Hall, 1992;
- WEALLEANS, D. The Quality Audit for ISO 9001:2000 : a Practical Guide. Hampshire : Gower, 2000;
- SLUGA, F. , DEMŠAR, A. Zagotavljanje kakovosti : študijsko gradivo. Ljubljana : NTF, 2014.

### Cilji in kompetence:

#### Temeljni cilj:

- Opredelitev sodobnega pojmovanja kakovosti in sistemov vodenja kakovosti v kontekstu svetovne konkurenčnosti in značilnosti orodij za vodenje kakovosti vključno s standardi za sisteme vodenja kakovosti, njihovega presojanja in certificiranja.

#### Kompetence:

- Sposobnost razumevanja sodobnih konceptov sistemov vodenja kakovosti in pojmovanja kakovosti;
- Razvijanje zavesti o pomenu kakovosti v kontekstu svetovne konkurenčnosti;
- Spoznavanje razvoja sistemov vodenja kakovosti in njihova kritična analiza;
- Sposobnost kritične analize orodij za vodenje kakovosti, vključno s standardi za sisteme vodenja kakovosti;
- Sposobnost uporabe metod in orodij za postopke stalnih izboljšav;
- Sposobnost izbire in uporabe temeljnih statističnih metod pri analizi podatkov;
- Sposobnost uporabe metod samoocenjevanja in razumevanje njihovega pomena za doseganje poslovne odličnosti;
- Sposobnost dela v skupini na področju kakovosti.

### Objectives and competences:

#### Objectives:

- Definition of modern understanding of quality management systems in the frame of world competition and characteristics of tools for quality management, including standardisation for quality management, assessment and certification.

#### Competences:

- Ability to understand modern concepts of quality and quality management systems;
- Development of awareness of the meaning of quality in the frame of world competition,
- Learning about the development of quality management systems and their critical evaluation;
- Ability of critical analysis of tools for quality management including standardisation for the quality management systems;
- Ability to use methods and tools for constant improvement;
- Ability to choose and use basic statistical methods at data analysis;
- Ability to use methods for self-evaluation and understanding of their meaning for development of business excellence;
- Ability to work in a team in the field of quality.

### Predvideni študijski rezultati:

#### Znanje in razumevanje:

- Pozna sodobni pomen kakovosti in sistemov vodenja kakovosti in jih zna kritično analizirati;
- Pozna osnovna orodja, ki se uporabljajo na področju vodenja in v procesu stalnih izboljšav kakovosti;

### Intended learning outcomes:

#### Knowledge and understanding of:

- Modern meaning of quality and quality management systems and their critical evaluation;
- Tools which are used in the field of management and in the process of constant quality improvement;

|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Pozna in razume pomen standardov za sisteme vodenja kakovosti;</li> <li>• Razume različne koncepte vodenja kakovosti;</li> <li>• Pozna in razume osnovne metode statistične analize;</li> <li>• Razume pomen kontrolnih kart kot orodja za odkrivanje neskladnosti v procesih;</li> <li>• Razume metode samoocenjevanja in nagrade za poslovno odličnost.</li> </ul> | <ul style="list-style-type: none"> <li>• Quality management standardisation; different concepts of quality management;</li> <li>• Basic statistical methods for data analysis;</li> <li>• Control charts as a tool for discovering discrepancies in processes;</li> <li>• Self-evaluation and awards for business excellency.</li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                     |                                       |
|-------------------------------------|---------------------------------------|
| <b>Metode poučevanja in učenja:</b> | <b>Learning and teaching methods:</b> |
| Predavanja in seminarsko delo.      | Lectures and seminar work.            |

|                                |                     |                               |
|--------------------------------|---------------------|-------------------------------|
| <b>Načini ocenjevanja:</b>     | <b>Delež/Weight</b> | <b>Assessment:</b>            |
| Pisni izpit                    | 50,00 %             | Written exam                  |
| Seminarska naloga              | 30,00 %             | Seminar paper                 |
| Predstavitev seminarske naloge | 20,00 %             | Presentation of seminar paper |

**Reference nosilca/Lecturer's references:**

|    |                                                                                                                                                                                                                                                                                                                                                        |
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| 1. | KAVKLER, Katja, DEMŠAR, Andrej. Application of FTIR and Raman spectroscopy to qualitative analysis of structural changes in cellulosic fibres = Uporaba FTIR in ramanske spektroskopije pri kvalitativni analizi strukturnih sprememb celuloznih vlaken. Tekstilec, ISSN 0351-3386, 2012, letn. 55, št. 1, str. 19-44, ilustr. [COBISS.SI-ID 2727792]; |
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