UNIVERSITY OF LJUBLJANA
FACULTY OF NATURAL SCIENCES AND ENGINEERING

DEPARTMENT OF TEXTILES, GRAPHIC ARTS AND DESIGN
CHAIR OF TEXTILE AND CLOTHING ENGINEERING

UNDERGRADUATE STUDY PROGRAMME – UNIVERSITY STUDY PROGRAMME

TEXTILE AND CLOTHING PLANNING

STUDY YEAR 2025/26

INFORMATION ON TEXTILE AND CLOTHING PLANNING STUDY PROGRAMME

Basic information

Name of study programme	**Textile and Clothing Planning**
Type	University study programme
The degree of study	Undergraduate study programme
KLASIUS-SRV	Academic higher education (first Bologna cycle) (16204)
ISCED	Manufacturing and processing (54)
KLASIUS-P	Textiles, clothes, footwear, leather (broad programmes) (5420)
KLASIUS-P-16	Textiles (clothes, footwear and leather) (0723)
Frascati	Engineering and technology (2)
Level SOK	SOK 7
Level EOK	EOK 6
Level EOVK	1st
Member of the University of Ljubljana	Faculty of Natural Sciences and Engineering, Aškerčeva cesta 12, 1000 Ljubljana, Slovenia
Duration (years)	3
Number of credits per year	60
Study mode	Full-time

Basic goals of the programme

The European and thus also the Slovenian textile and clothing industry is facing major development challenges in the period of full liberalisation of trade in textile products. Its future position will depend on the measures that will increase its competitive advantage. It needs to invest more in research and development, promote innovation and implement appropriate HR policies. In the Slovenian textile and clothing industry, the situation of human resources is particularly urgent due to the complete collapse of secondary education in this profession, first in the primary textile industry and now also in the clothing industry.

The analyses conducted in the EU show that the textile industry has a future even in developed economies, of course under certain conditions. This future can only be shaped by abandoning mass-produced products, replacing them with textile and clothing products with high added value, high quality, sophisticated design, creative future products, technical products, medical textiles, smart textiles etc.

Among other measures, the objectives are closely related to the relevant knowledge and excellent training of professionals who have the skills and abilities to design, develop and manufacture innovative products that meet the requirements and needs of the most demanding customers. The ultimate goal of such a focus is to produce products that exceed the requirements of customers in every way and predict their future needs and demands.

The basic goal of the university study programme Textile and Clothing Planning is to train professionals capable of mastering the most technologically demanding processes in the textile and clothing industry, and of designing sophisticated products and technological processes, while providing them with the appropriate basic scientific and professional knowledge to continue their education with a master's degree.

In accordance with the principles of the Bologna process, the programme, compared to the previous ones, implies a departure from the teaching philosophy with an otherwise correct arrangement of different technologies applied to selected scientific content. The default learning philosophy is such that in addition to the acquired knowledge, other competences of graduates, their skills and abilities are important, in this case with a focus on mastering the theoretical foundations of rapidly developing technologies in the field of primary textile production and clothing industry. An important component of the programme is the development of students' awareness and accustoming them to the need for continuous education and the development of skills in the use of ICT, information resources, professional and ethical responsibility, and teamwork.

General competences (learning outcomes)

- expertise gained by the study of theoretical and methodological concepts;
- ability to transfer theoretical knowledge into practice and use it to solve problems, especially by seeking new sources of knowledge and using scientific methods;
- ability to experiment and visually transfer various concepts of thinking;
- developed capacity for independent learning in a specific professional area;
- initiative and independence in decision making and management of the most demanding work;
- ability to communicate with colleagues and experts in related disciplines, which facilitates active cooperation in teamwork and in the area of projects based on linking professional principles with the design practice;
- developed professional, ethical and environmental responsibility;
- ability to use modern tools, skills and dexterity, primarily in the field of ICT in daily professional and scientific research work.

Subject-specific competences (learning outcomes)

- in-depth knowledge of mathematics, physics and chemistry with the developed capacity for thinking in terms of natural sciences;
- theoretical knowledge that allows good judgment and linking properties of fibres to their morphological structure, or its modification during the technological processing of fibres;
- understanding the interdisciplinary development of modern fibre forming polymers by combining different scientific disciplines (chemistry, bio(techno)logy, nanotechnology, information technology) to create responsive and intelligent fibre forming polymers;
- capacity to link the effects of various raw materials and technological factors to the structure and properties of yarns, woven and knitted fabrics, nonwovens and knitwear;
- knowledge basic weaving and knitting structures, properties originating from them, and their advantages and shortcomings;
- capacity of optimising technological processes of clothing production by transferring theoretical knowledge into practice and achieving higher quality of the final product;
- knowledge of the theoretical basics of finishing, which forms the basis for independent creative research work in the fields of dyeing, printing, finishing and care of textiles;
- capacity of planning pre-finishing, dyeing, printing and finishing processes with regard to the constructional characteristics of textiles and with consideration for environmental requirements;
- mastering computer-assisted patterning of yarns, woven and knitted fabrics, knitwear and printing patterns;
- capacity of supervision, analysis and management of the production process, capacity of planning the production process using the methods of network planning and recognition of the possibility of introducing computer applications in the production process as well as their evaluation from the standpoint of cost and humanisation of work;
- ability to understand modern concepts of quality management systems and their importance in the context of global competition.

Enrolment conditions

Enrolment in the undergraduate study programme Textile and Clothing Planning shall be possible for:

a) any person who has passed the general matura exam,
b) any person who has passed the vocational matura exam in any secondary school programme and an examination in one of the matura courses; the chosen course cannot be the same course that the candidate has already passed at their vocational matura exam,

c) any person who has completed any four-year secondary school programme prior to 1 June 1995.

Criteria in the event of enrolment limitation

In case of limited enrolment, candidates from items a) and c) will be selected according to their:

- overall performance at the general matura exam or final examination (60%);
- overall performance in the 3rd and 4th years at secondary school (40%).

Candidates from item b) will be selected according to their:

- overall performance at their vocational matura exam (40%);
- overall performance in the 3rd and 4th years at secondary school (40%);
- performance in the chosen general matura course (20%).

Criteria for crediting knowledge and skills obtained before enrolment

Recognition can be given to students' knowledge that corresponds in contents to the learning contents of the courses of the undergraduate university study programme Textile and Clothing Planning, acquired in various forms of education. The recognition of knowledge and skills acquired prior to the enrolment is decided by the department Study Committee on the basis of students' written application, attached certificates and other documents proving the successfully acquired knowledge and its contents.

When crediting knowledge obtained before the enrolment, the department Study Committee will take into account the following criteria:

- whether the conditions for enrolling into a specific educational course are adequate (required prior education for starting the study programme);
- whether the scope of the completed educational course (number of hours of prior education compared to the scope of the course in question) adequately compares with the credited requirements;
- whether the areas covered by the prior education programme, which the applicant would like to have credited, adequately compare with the courses which are dealt with in the faculty study programme.

The acquired knowledge and skills may be credited as a completed study activity if the conditions for taking part in the educational programme were the same as for enrolling into the undergraduate university study programme Textile and Clothing Planning, if the prior educational programme encompassed at least 75% of the scope of the course and if at least 75% of its contents cover the same areas as the course which the applicant would like to have credited. If the Committee finds that the acquired knowledge can be credited, the same number of ECTS credits is granted as awarded for the course in question.

Assessment methods

Assessment methods are in accordance with the Statute of the University of Ljubljana and are specified in the curricula.

Requirements for progression through the programme

To enter into a higher class, a student must have confirmed attendance in all courses, completed all practical courses and the following number of ECTS credit points obtained for enrolment in each individual year:

- minimum 54 ECTS credits for enrolment in the 2nd year;
- 60 ECTS credits from the 1st year and minimum 54 ECTS credit points from the 2nd year for enrolment in the 3rd year.

The department Study Committee may exceptionally grant progression to a higher class to a student who has collected at least 42 ECTS credit points in the previous year if there are justified reasons for exception. Justified reasons are listed in the Statute of the University of Ljubljana.

To re-enrol in the same year (repetition of the same year), students need to have:

- all practical classes completed and minimum 28 ECTS credit points obtained for the 1st year;
- all practical classes completed and minimum 28 ECTS credit points obtained for the 2nd year.

During the course of studies, a student can repeat a class once or change the study programme once for having failed to meet their obligations in the previous study programme.

Transfer between programmes

Transfer is possible between two study programmes:

- that upon the completion of studies ensure the acquisition of comparable competences or learning outcomes;
- where, in line with the criteria for the recognition of knowledge and skills acquired prior to the enrolment in the undergraduate university study programme Textile and Clothing Planning, at least half of the obligations according to the European Credit Transfer System (ECTS) can be recognised from the first study programme, referring to compulsory courses of the undergraduate university study programme Textile and Clothing Planning.

An individual exam passed in the original study programme is recognised as passed in the undergraduate university study programme Textile and Clothing Planning if the contents of both courses are at least 75% compatible. The recognised exam is evaluated with credits in the original study programme; however, not with more credits as evaluated in the undergraduate university study programme Textile and Clothing Planning.

A candidate can enrol through transfer in the 2nd or 3rd year of the undergraduate university study programme Textile and Clothing Planning if:

- the requirements for the enrolment in the study programme are met;
- vacant places are available.

The department Study Committee determines for each applicant the extent to which it recognises their already completed study obligations, determines new obligations and which year the applicant can enrol in.

Requirements for completing studies

To complete the studies, students must meet the obligations in all enrolled courses, prepare a diploma thesis and defend it.

Professional or scientific title (and abbreviation)

Bachelor of Science (B.Sc.)

CURRICULUM OF THE STUDY PROGRAM WITH INTENDED COURSES AND LECTURERS

1st year, compulsory

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0642798	Mathematics 1	Janko Bračič	45	0	45	0	0	90	180	6	1st semester	no
2.	0642800	Physics	Borut Paul Kerševan	45	0	45	0	0	90	180	6	1st semester	no
3.	0068727	Chemistry 1	Urška Lavrenčič Štangar	60	0	30	0	0	90	180	6	1st semester	no
4.	0068733	Fibres	Tatjana Rijavec	75	15	30	0	0	120	240	8	All-year	no
5.	0068729	Creativity and product development	Alenka Pavko Čuden, Andrej Demšar	30	30	0	0	0	60	120	4	1st semester	no
6.	0068726	Interdisciplinarity of textiles	Brigita Tomšič, Tatjana Rijavec	45	15	0	0	0	60	120	4	1st semester	no
7.	0642799	Mathematics 2	Janko Bračič	45	0	45	0	0	90	180	6	2nd semester	no
8.	0642801	Physics 2	Borut Paul Kerševan	45	0	45	0	0	90	180	6	2nd semester	no
9.	0068728	Chemistry 2	Uroš Grošelj	45	15	30	0	0	90	180	6	2nd semester	no
10.	0068731	Spinning	Dunja Šajn Gorjanc	30	0	30	0	0	60	120	4	2nd semester	no
11.	0643006	Nonwovens	Dunja Šajn Gorjanc	45	0	15	0	0	60	120	4	2nd semester	no
		Total		510	75	315	0	0	900	1800	60		

2nd year, compulsory

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0068742	Statistics	Stanislav Praček	30	0	30	0	0	60	120	4	1st semester	no
2.	0068734	Weaving	Matejka Bizjak	45	15	30	0	0	90	180	6	1st semester	no
3.	0068736	Woven structures	Matejka Bizjak	30	0	30	0	0	60	120	4	1st semester	no
4.	0068737	Knitting	Alenka Pavko Čuden	45	15	30	0	0	90	180	6	1st semester	no
5.	0068735	Knitted structures	Živa Zupin	30	0	30	0	0	60	120	4	1st semester	no
6.	0068740	Testing of textiles	Andrej Demšar	30	15	30	0	15	90	180	6	1st semester	no
7.	0068744	Theory of finishing	Barbara Simončič	45	15	0	0	0	60	120	4	2nd semester	no
8.	0068738	Pretreatment of textiles	Petra Eva Forte Tavčer	45	15	30	0	0	90	180	6	2nd semester	no
9.	0643007	Introduction to technical textiles and composites	Dunja Šajn Gorjanc, Tatjana Rijavec	30	15	15	0	0	60	120	4	2nd semester	no
10.	0068741	Development of clothing patterns	Matejka Bizjak , Živa Zupin	30	15	15	0	0	60	120	4	2nd semester	no
11.	0068743	English for specific purposes	Barbara Luštek Preskar, prof. angl. in nem.	0	60	0	0	0	60	120	4	2nd semester	no
12.	0111845	Optional course 1		30	0	30			60	120	4	2nd semester	no
13.	0111846	Optional course 2		30	15	15	0	0	60	120	4	2nd semester	no
		Total		420	180	285	0	15	900	1800	60		

2nd year, elective 1 and 2

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0068708	Computer-assisted design of yarns and woven fabrics	Živa Zupin	30	0	30	0	0	60	120	4	2nd semester	yes
2.	0068707	Computer-assisted design of knitted fabrics and knitwear	Živa Zupin	30	0	30	0	0	60	120	4	2nd semester	yes
3.	0068706	Computer assisted processes in apparel manufacturing	Živa Zupin	30	0	30	0	0	60	120	4	2nd semester	yes
4.	0068709	Computer-assisted design for printing	Marija Gorjanc	15	30	15	0	0	60	120	4	2nd semester	yes
5.	0068710	Production management	Andrej Demšar	45	15	0	0	0	60	120	4	2nd semester	yes
6.	0108510	Marketing of textiles and clothing	Mateja Kos Koklič	45	15	0	0	0	60	120	4	2nd semester	yes
7.	0068705	Entrepreneurship	Blaž Zupan	30	0	30	0	0	60	120	4	2nd semester	yes
8.	0068712	Quality management	Andrej Demšar, Marica Starešinič	30	30	0	0	0	60	120	4	2nd semester	yes
9.	0068711	Leather and fur	Marija Gorjanc	15	30	0	0	15	60	120	4	2nd semester	yes
10.	0068703	Basics of 3D modelling	Helena Gabrijelčič Tomc	30	15	15	0	0	60	120	4	2nd semester	yes
11.	0642820	Technological design of textiles and clothing	Alenka Pavko Čuden	30	30	0	0	0	60	120	4	2nd semester	yes
12.	0642821	Special clothing patterns	Živa Zupin	45	15	0	0	0	60	120	4	2nd semester	yes

13.	0642822	Nonconventional fibrous materials	Marija Gorjanc, Tatjana Rijavec	30	0	30	0	0	60	120	4	2nd semester	yes
14.	0642823	Digital in Design	Karin Košak, Tanja Nuša Kočevar	30	30	0	0	0	60	120	4	2nd semester	yes
15.	0068373	Textile and clothing tradiction	Alenka Pavko Čuden	45	15	0	0	0	60	120	4	2nd semester	yes
16.	0642824	Practice/project work	Alenka Pavko Čuden, Andrej Demšar, Barbara Simončič, Brigita Tomšič, Dunja Šajn Gorjanc, Marija Gorjanc, Matejka Bizjak , Petra Eva Forte Tavčer, Stanislav Praček, Tatjana Rijavec, Živa Zupin	0	0	0	0	60	60	120	4	2nd semester	yes
		Total		480	225	180	0	75	960	1920	64		

3rd year, compulsory

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0068751	Apparel technology	Matejka Bizjak	45	15	30	0	0	90	180	6	1st semester	no
2.	0068750	Dyeing technology	Marija Gorjanc	30	15	45	0	0	90	180	6	1st semester	no
3.	0068749	Finishing	Barbara Simončič	45	30	15	0	0	90	180	6	1st semester	no
4.	0068752	Printing of textiles	Petra Eva Forte Tavčer	45	15	30	0	0	90	180	6	1st semester	no

5.	0068746	Colour measurement in textiles	Sabina Bračko	30	0	15	0	0	45	90	3	1st semester	no
6.	0068748	Information sources and methodology of thesis work	Danica Dolničar	30	15	0	0	0	45	90	3	1st semester	no
7.	0068747	Ecology in textiles and apparel	Petra Eva Forte Tavčer	30	15	15	0	0	60	120	4	2nd semester	no
8.	0068753	Textile care 1	Barbara Simončič, Brigita Tomšič	30	15	15	0	0	60	120	4	2nd semester	no
9.	0111847	Optional course 3		30	0	30	0	0	60	120	4	2nd semester	no
10.	0111848	Optional course 4		30	15	15	0	0	60	120	4	2nd semester	no
11.	0111849	Optional course 5		45	15	0	0	0	60	120	4	2nd semester	no
12.	0068745	Diploma work						150	150	300	10	1st semester	no
		Total		390	150	210	0	150	900	1800	60		

3th year, elective 3, 4 in 5

				Contact hours									
	University Course Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other forms of study	Individual student work	Total hours	ECTS	Semesters	Elective
1.	0068708	Computer-assisted design of yarns and woven fabrics	Živa Zupin	30	0	30	0	0	60	120	4	2nd semester	yes
2.	0068707	Computer-assisted design of knitted fabrics and knitwear	Živa Zupin	30	0	30	0	0	60	120	4	2nd semester	yes
3.	0068706	Computer assisted processes in apparel manufacturing	Živa Zupin	30	0	30	0	0	60	120	4	2nd semester	yes

4.	0068709	Computer-assisted design for printing	Marija Gorjanc	15	30	15	0	0	60	120	4	2nd semester	yes
5.	0068710	Production management	Andrej Demšar	45	15	0	0	0	60	120	4	2nd semester	yes
6.	0108510	Marketing of textiles and clothing	Mateja Kos Koklič	45	15	0	0	0	60	120	4	2nd semester	yes
7.	0068705	Entrepreneurship	Blaž Zupan	30	0	30	0	0	60	120	4	2nd semester	yes
8.	0068712	Quality management	Andrej Demšar, Marica Starešinič	30	30	0	0	0	60	120	4	2nd semester	yes
9.	0068711	Leather and fur	Marija Gorjanc	15	30	0	0	15	60	120	4	2nd semester	yes
10.	0068703	Basics of 3D modelling	Helena Gabrijelčič Tomc	30	15	15	0	0	60	120	4	2nd semester	yes
11.	0642820	Technological design of textiles and clothing	Alenka Pavko Čuden	30	30	0	0	0	60	120	4	2nd semester	yes
12.	0642821	Special clothing patterns	Živa Zupin	45	15	0	0	0	60	120	4	2nd semester	yes
13.	0642822	Nonconventional fibrous materials	Marija Gorjanc, Tatjana Rijavec	30	0	30	0	0	60	120	4	2nd semester	yes
14.	0642823	Digital in Design	Karin Košak, Tanja Nuša Kočevar	30	30	0	0	0	60	120	4	2nd semester	yes
15.	0068373	Textile and clothing tradiction	Alenka Pavko Čuden	45	15	0	0	0	60	120	4	2nd semester	yes
16.	0642824	Practice/project work	Alenka Pavko Čuden, Andrej Demšar, Barbara Simončič, Brigita Tomšič, Dunja Šajn Gorjanc, Marija Gorjanc, Matejka Bizjak , Petra Eva Forte Tavčer, Stanislav Praček, Tatjana Rijavec, Živa Zupin	0	0	0	0	60	60	120	4	2nd semester	yes

	Total	480	225	180	0	75	960	1920	64	

APPENDIX:
COURSE SYLLABI

APPAREL TECHNOLOGY

Predmet:	Konfekcijska tehnologija
Course title:	Apparel technology
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068751
Koda učne enote na članici/UL Member course code:	11292

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

Nosilec predmeta/Lecturer:	Matejka Bizjak
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 letnik študija. Za pristop h končnemu izpitu je pogoj opravljen seminar.	Enrolment into study year. Before the final exam students must present a seminar work.

Vsebina:	Content (Syllabus outline):
• 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, • kakovostne zahteve materialov in procesov	• introduction to modern preparation for clothing manufacture, • technical preparation of production supported by the use of CAD system, • 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, modern sewing machines), • pressing technology, • quality requirements of materials and processes.

Temeljna literatura in viri/Readings:

- CARR & LATHAM´S: Technology of clothing manufacture, Blackwell Publishing, UK, 2000, ISBN - 0-632-05248-1, COBISS.SI-ID – 903536.

- G. COOKLIN: Introduction to clothing manufacture, Blackwell Publishing, UK, 2002, ISBN - 0-632-02661-8, COBISS.SI-ID – 1233264.
- R.M. LAITING, J WEBSTER: Stitches and Seams, The textile Institute, 1998, ISBN - 1-870812-73-5, COBISS.SI-ID – 849264.
- Izročki predavanj, izbrani članki in gradivo v spletni učilnici.

Cilji in kompetence:	**Objectives and competences:**
Cilji: • poznavanje 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 s področij konstrukcije, CAD/CAM sistemov, materialov 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 v prakso ter amostojnega vodenja, • poznavanje integriranih proizvodnih procesov in trendov globalizacije, • poznavanje strokovne terminologije.	**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 to achieve competitiveness, The ability to integrate knowledge from design, modeling, CAD / CAM systems, materials and applications based on the definition of the product end-use, • the ability to optimize the technological processes of manufacture garments and other products, selection of working tools and production monitoring, • the ability to introduce new technologies and skills into practice and self-management, • knowledge of integrated production processes and trends of globalization, • terminology.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • standardi in sistemi označevanja velikosti oblačil, • sodobna priprava proizvodnje, • tehnološki proces krojenja, računalniško pripravo na krojenje, tehnološko opremo za krojenje, • pomen fiksiranja, tehnološki postopek, pogoje fiksiranja, pravilen izbor medvloge, • vbode, šive, tehnološki proces in tehnološko opremo za šivanje, pomen pravilne izbire šivalnih parametrov, igle in sukanca, • tehnološki proces likanja, • kakovostne zahteve materialov in procesov, • trendi avtomatizacije v konfekcijski industriji.	**Knowledge and understanding:** • standards and size chart formulation, • modern production preparation, • cutting technology, computer aided preparation for cutting, cutting machinery, • importance of fusing, technological process and fusing conditions, selection of interlinings, • stitches, seams, technological process sewing machinery, the importance of sewing parameters, needle and threads, • pressing technology, • quality requirements of materials and processes, • It takes note of the guidelines development in the s -trends of automation in clothing manufacturing.

Metode poučevanja in učenja:	**Learning and teaching methods:**
predavanja, seminar, laboratorijske vaje	lectures, seminars, laboratory work

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
izpit (pisni/ustni)	70,00 %	exam (written/oral)
seminarska naloga in kolokvij iz vaj	30,00 %	seminar work and colloquium from tutorial

Ocenjevalna lestvica:	Grading system:
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. KOCIĆ, Ana, BIZJAK, Matejka, POPOVIĆ, Dušan, POPARIĆ, Goran, STANKOVIĆ, Snežana. UV protection afforded by textile fabrics made of natural and regenerated cellulose fibres. Journal of cleaner production. [Print ed.]. 10. Aug. 2019, vol. 228, str. 1229-1237.
2. STANKOVIĆ, Snežana, NOVAKOVIĆ, Milada, POPOVIĆ, Dušan M., POPARIĆ, Goran, BIZJAK, Matejka. Novel engineering approach to optimization of thermal comfort properties of hemp containing textiles. The journal of The Textile Institute. 2019, vol. 110, no. 9, str. 1271-1279.
3. JEVŠNIK, Simona, KALAOĞLU, Fatma, ERYÜRÜK, Hanife, BIZJAK, Matejka, STJEPANOVIĆ, Zoran. Evaluation of a garment fit model using AHP. Fibres & textiles in Eastern Europe : an international magazine devoted to current problems of the textile industries in Central and Eastern Europe. 2015, vol. 23, iss. 2(110), str. 116-122.
4. KOSTAJNŠEK, Klara, PEULIĆ, Svjetlana, BIZJAK, Matejka. Design and development of a jacquard fabric for zero- waste garments. V: PERRIN AKÇAKOCA KUMBASAR, Emriye (ur.). *Book of proceedings*. 16th International İzmir Textile & Apparel Symposium, IITAS 2023, October 25 - 27, 2023, İzmĭr-Türkïye. Izmir: Ege University, Faculty of Engineering, Department of Textile Engineering, 2023. Str. 440-443, ilustr. ISBN 978-605-338-430-4. https://drive.google.com/file/d/1vZ8jTFk01R6uCHjadZ10f_SFFgf3EpFh/view. [COBISS.SI-ID 173478915]
5. BIZJAK, Matejka. Texprocess 2022 – Več kot napredek = Texprocess 2022 – More than progress. *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2023, vol. 66, priloga 1, str. si 22-si 29, ilustr. ISSN 0351-3386. [COBISS.SI-ID 161366787]

BASICS OF 3D MODELLING

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068703
Koda učne enote na članici/UL Member course code:	11312

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

Nosilec predmeta/Lecturer:	Helena Gabrijelčič Tomc
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. Osnovno znanje uporabe računalnika.	Enrollment in the study year. Basic knowledge of computer use.

Vsebina:	Content (Syllabus outline):
• 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; • Mape in teksturiranje (projekcijsko in enostavno UV mapiranje); • Teoretične osnove simulacije svetlobnih interakcij v 3D prostoru; • Teoretično ozadje 3D osvetljevanja; • Virtualna kamera in pomen kompozicije; • Tehnike in algoritmi osnovnih in naprednih upodobljevalnikov;	• 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; • Maps and texturing (projection and simple UV mapping); • Theoretical basis of light interactions in 3D space; • Theoretical background of 3D lightning; • Virtual camera and the composition; • Techniques and algorithms of simple and advanced rendering engines;

• Osnove modeliranja in simuliranja dinamičnih objektov (toga in mehka telesa, tekstil,...).	• Basic techniques of modelling and simulation of dynamic objects (rigid and soft bodies, cloths...).

Temeljna literatura in viri/Readings:

1. ERZETIČ Blaž, GABRIJELČIČ Helena. 3D od točke do upodobitve, 2. izdaja, Pasadena. 2010;
2. BLAIN, J. M. The complete guide to Blender graphics : computer modeling & animation, Boca Raton ; London ; New York : CRC Press, 2015
3. CHOPINE, A. 3D art essentials : the fundamentals of 3D modeling, texturing, and animation, Amsterdam [etc.] : Elsevier : Focal Press, 2011
4. GABRIJELČIČ TOMC, H.; KOČEVAR, T. N.; ISKRA, A. 3D animacije ustvarjanje od giba do simulacije, Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2021
5. STEVENS, R. C. Designing immersive 3D experiences : a designer's guide to creating realistic 3D experiences for extended reality, [Hoboken] : New Riders, cop. 2022

Cilji in kompetence:	**Objectives and competences:**
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 pudarkom 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.	**Aim** of the course is understanding the importance of 3D cmputer 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 texturesa 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 alghoritms for simple and advanced rendering.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študent bo razumel teoretične osnove in obvladal prenos v prakso osnovnih in zahtevnejših tehnik 3D modeliranja (s poudarkom na topologiji), osvetljevalnih sistemov, teskturiranja, postavitve scene, upodabljanja ter osnovnih postopkov priprave modela za 3D animiranje.	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:	**Learning and teaching methods:**
Predavanja, seminar (samostojno projektno delo), računalniške vaje in vodeno individualno delo.	Lectures, seminar (individual project work), computer exercises and guided individual work.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Izpit teoretskih znanj in ocena projektnega dela	70,00 %	Exam of theoretical knowledge and evaluation of project work,
Ocena iz računalniških vaj	30,00 %	Completed computer tutorials

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ERZETIČ, Blaž, GABRIJELČIČ, Helena. 3D od točke do upodobitve. natis. Ljubljana: Pasadena, 2009. 201 str., ilustr. ISBN 978-961-6361-99-6;
2. GABRIJELČIČ TOMC, Helena, KOČEVAR, Tanja Nuša, ISKRA, Andrej. 3D animacije ustvarjanje od giba do simulacije. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2021. 211 str., ilustr. ISBN 978-961-6900-28-7. [COBISS.SI-ID 67358979]
3. GABRIJELČIČ TOMC, Helena, BRATUŽ, Nika, JAVORŠEK, Dejana. Colorimetric accuracy of color reproductions in the 3D scenes. Tehnički vjesnik : znanstveno-stručni časopis tehničkih fakulteta Sveučilišta u Osijeku. 2021, vol. 28, no. 1, str. 20-26. [COBISS.SI-ID 57969155]
4. JAVORŠEK, Dejana, ISKRA, Andrej, GABRIJELČIČ TOMC, Helena, JAVORŠEK, Andrej. Theoretical prediction of colours and illuminants in sRGB colour space. Acta graphica, ISSN 0353-4707. [Print ed.], 2012, [vol.] 23, [št.] 1/2, str. 13-24, ilustr.http://www.actagraphica.hr/index.php/actagraphica/article/view/95.

CHEMISTRY 1

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Grafične in interaktivne komunikacije, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068727
Koda učne enote na članici/UL Member course code:	10019

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

Nosilec predmeta/Lecturer:	Urška Lavrenčič Štangar
Vrsta predmeta/Course type:	Obvezni/Compulsory

Jeziki/Languages:	Predavanja/Lectures:	Slovenščina
	Vaje/Tutorial:	Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v letnik študija. Obvezna prisotnost: Predavanja – 70 %; Vaje – 100 %.	Enrolment into the study year. Compulsory attendance: Lectures – 70 %; Tutorials – 100 %.

Vsebina:	**Content (Syllabus outline):**
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; Spontanost kemijskih reakcij; Elektrokemija; Atomsko jedro in jedrska kemija; Osnove kemijskega računanja (množina snovi,	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; Acids and bases.Spontaneity of chemical reactions; Electrochemistry, Atomic nucleus and nuclear chemistry; The fundamental of stoichiometry (amount of substance, elemental analysis, calculation of amount

elementna analiza, računanje množinskega razmerja pri reakcijah v plinskih zmeseh in raztopinah).	ratio in chemical reactions taking place in gases or solutions).

Temeljna literatura in viri/Readings:

- B. ČEH: Splošna in anorganska kemija. Zbirka pojmov in nalog z odgovori in rešitvami, 2. dopolnjena izdaja, Založba UL FKKT, Ljubljana, 2015, 240 str.
- B. ČEH: Kemijsko računanje in osnove kemijskega ravnotežja, Univ. založba, Ljubljana, 2006, 198 str.
- B. ČEH: Splošna kemija, Založba UL FKKT, Ljubljana, 2018, 360 str.

- S.S. ZUMDAHL, S.A. ZUMDAHL, D.J. DECOSTE: Chemistry, deseta izdaja, Cengage Learning, Boston, 2018, 1219 str.

Dodatna literatura:

Cilji in kompetence:	**Objectives and competences:**
Pri predmetu se študentje naučijo temeljnih prijemov in konceptov, ki so potrebni za razumevanje lastnosti in obnašanja anorganskih in organskih snovi.	The students learn the basic concepts of chemistry and stoichimetry with the aim of understanding of the properties and behavior of the inorganic and organic substances.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Razvijanje sposobnosti lastnega učenja osnovnih predmetov in nato prilagajanje ter uporaba znanja na svojem strokovnem področju.	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:	**Learning and teaching methods:**
Predavanja, pisanje na tablo, PowerPoint predstavitev, prikazovanje kemijskih eksperimentov.	Oral lectures, blackboard writing skills, Power-Point presentation, demonstration of chemical experiments.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Vaje	30,00 %	Excercises (coursework)
Pisni izpit	70,00 %	Writing exam

Ocenjevalna lestvica:	**Grading system:**

Reference nosilca/Lecturer's references:

1. ŠULIGOJ, Andraž, CERC KOROŠEC, Romana, ŽERJAV, Gregor, NOVAK TUŠAR, Nataša, LAVRENČIČ ŠTANGAR, Urška. Solar-driven photocatalytic films : synthesis approaches, factors affecting environmental activity, and characterization features. *Topics in current chemistry* (2022) 380:5
2. KUMAR, Praveen, VERMA, Shilpi, KAUR, Ramanpreet, PAPAC, Josipa, KUŠIĆ, Hrvoje, LAVRENČIČ ŠTANGAR, Urška. Enhanced photo-degradation of N-methyl-2-pyrrolidone (NMP) : influence of matrix components, kinetic study and artificial neural network modelling. *Journal of hazardous materials* 434 (2022) 128807.
3. TALWAR, Steffi, VERMA, Anoop Kumar, SANGAL, Vikas Kumar, LAVRENČIČ ŠTANGAR, Urška. Once through continuous flow removal of metronidazole by dual effect of photo-Fenton and photocatalysis in a compound parabolic concentrator at pilot plant scale. *Chemical engineering journal* 388 (2020) 124184.
4. KUMAR, Praveen, CERC KOROŠEC, Romana, LAVRENČIČ ŠTANGAR, Urška. Highly active and efficient Cu-based hydrotalcite-like structured materials as reusable heterogeneous catalysts used for transcarbonation reaction. *Journal of colloid and interface science* 585 (2021) 549-559.
5. ŽENER, Boštjan, MATOH, Lev, RODIČ, Peter, ŠKUFCA, David, HEATH, Ester, LAVRENČIČ ŠTANGAR, Urška. Removal of 18 bisphenols co-present in aqueous media by effectively immobilized titania photocatalyst. *Journal of environmental chemical engineering* 9 (2021) 106814.

CHEMISTRY 2

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Grafične in interaktivne komunikacije, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068728
Koda učne enote na članici/UL Member course code:	10020

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

Nosilec predmeta/Lecturer:	Uroš Grošelj
Vrsta predmeta/Course type:	Obvezni/Compulsory

Jeziki/Languages:	Predavanja/Lectures:	Slovenščina
	Vaje/Tutorial:	Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v program. Uspešno opravljene laboratorijske vaje (obvezna 100 % prisotnost) so pogoj za pristop k pisnemu izpitu. Za pozitivno oceno pri predmetu Kemija 2 mora biti študent/-ka pozitivno ocenjen/-a pri vsakem posameznem deležu, ki sestavlja končno oceno. Ocenjevalna lestvica (skladno s Statutom UL in fakultetnimi pravili): 5 nezadostno, zadostno 6, dobro 7, prav dobro 8, prav dobro 9 in odlično 10.	Enrolment in the programme. Successfully completed laboratory course (100 % attendance obligatory) is required for taking an exam in Chemistry 2. To pass the course, the student must have completed successfully (with the passing grade) all the course parts. The grading scale (according to the University of Ljubljana Statute and the faculty regulations): 5 fail, 6 satisfactory, 7 good, 8 very good, 9 very good and 10 excellent.

Vsebina:	**Content (Syllabus outline):**
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: pregled tipičnih	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 os isomerism;

reakcijskih intermediatov in njihove značilnosti, reakcijski mehanizmi, kislost in bazičnost organskih spojin; Pretvorbe organskih spojin: tipi kemijskih reakcij v organski kemiji, elektrofili in nukleofili, pretvorbe nasičenih spojin, pretvorbe nenasičenih spojin, pretvorbe aromatskih spojin; Makromolekule in polimeri: pregled in tipične lastnosti aminokislin, ogljikovih hidratov, peptidov in lipidov.	Reactivity of organic compounds: survey of the typical reaction intermediates and their properties, reaction mechanisms, acidity and basicity of organic compounds; Transformations of organic compounds: types of the chemical reactions in organic chemistry, electrophiles and nucleophiles, transformations of saturated compounds, transformations of unsaturated compounds, transformations of aromatic compounds; Macromolecules and polymers: survey and typical properties of amino acids, carbohydrates, peptides and lipides.

Temeljna literatura in viri/Readings:

- D. J. Hart, C. M. Hadad, L. E. Craine, H. Hart: ORGANIC CHEMISTRY - A brief course, Brooks/Cole, 2012; ISBN-13: 978-1-111-42624-8
- John McMurry: Fundamentals of ORGANIC CHEMISTRY, Seventh Edition, Brooks/Cole Cengage Learning 2007, 2011; ISBN-13: 978-1-4390-4971-6
- Darko Dolenc, Organska kemija, 2019, založnik: UL FKKT, ISBN: 9789617078008

Cilji in kompetence:	**Objectives and competences:**
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.	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:	**Intended learning outcomes:**
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.	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:	**Learning and teaching methods:**
Predavanja, seminarske vaje, laboratorijske vaje. Predavanja in seminarske vaje se izvajajo v predavalnici ali izjemoma preko spleta (online) s pomočjo primerne in ustrezne programske opreme. Vaje se izvajajo zgolj v laboratoriju, preverjanje znanja (pisni izpit) se izvaja v predavalnici.	Lectures, seminars, laboratory exercises. Lectures and seminars will be held in a lecture hall or exceptionally online using appropriate and adequate software. Laboratory exercises take place only in the laboratory, exams are held in the lecture hall.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Laboratorijske vaje	30,00 %	Laboratory exercises
Pisni izpit Uspešno opravljene laboratorijske vaje so pogoj za pristop k pisnemu izpitu. Za pozitivno oceno pri predmetu Kemija 2 mora biti študent/-ka pozitivno ocenjen/-a pri vsakem posameznem deležu, ki sestavlja končno oceno. Ocenjevalna lestvica (skladno s Statutom UL in fakultetnimi pravili): 5 – znanje ne ustreza minimalnim kriterijem, 6 – znanje ustreza le minimalnim kriterijem, 7 – dobro znanje z več pomanjkljivostmi, 8 –dobro znanje s posameznimi pomanjkljivostmi, 9 – zelo dobro znanje z manjšimi napakami in 10 zjemno znanje brez ali z zanemarljivimi napakami.	70,00 %	Examination Successfully completed laboratory course is required for taking an exam in Chemistry 2. To pass the course, the student must have completed successfully (with the passing grade) all the course parts. The grading scale (according to the University of Ljubljana Statute and the faculty regulations): 5 fail, 6 satisfactory, 7 good, 8 very good, 9 very good and 10 excellent.

Ocenjevalna lestvica:	**Grading system:**

Reference nosilca/Lecturer's references:

1. RIČKO, Sebastijan, MEDEN, Anže, CIBER, Luka, ŠTEFANE, Bogdan, POŽGAN, Franc, SVETE, Jurij, GROŠELJ, Uroš. Construction of vicinal tetrasubstituted stereogenic centers via a Mannich-type organocatalyzed addition of Δ2-pyrrolin-4-ones to isatine imines. *Advanced Synthesis & Catalysis*, ISSN 1615-4150. [Print ed.], 2018, vol. 360, iss. 6, str. 1072-1076, ilustr. https://onlinelibrary.wiley.com/doi/full/10.1002/adsc.201701384, doi: 10.1002/adsc.201701384. [COBISS.SI-ID 1537675459]
2. RIČKO, Sebastijan, MEDEN, Anže, IVANČIČ, Anže, PERDIH, Andrej, ŠTEFANE, Bogdan, SVETE, Jurij, GROŠELJ, Uroš. Organocatalyzed deracemisation of Δ2-pyrrolin-4-ones. *Advanced Synthesis & Catalysis*, ISSN 1615-4150. [Print ed.], 2017, vol. 359, iss. 13, str. 2288-2296, ilustr. http://onlinelibrary.wiley.com/doi/10.1002/adsc.201700539/full, doi: 10.1002/adsc.201700539. [COBISS.SI-ID 1537417667]
3. RIČKO, Sebastijan, SVETE, Jurij, ŠTEFANE, Bogdan, PERDIH, Andrej, GOLOBIČ, Amalija, MEDEN, Anže, GROŠELJ, Uroš. 1,3-diamine-derived bifunctional organocatalyst prepared from camphor. *Advanced Synthesis & Catalysis*, ISSN 1615-4150. [Print ed.], 2016, vol. 358, iss. 23, str. 3786-3796, ilustr. http://onlinelibrary.wiley.com/wol1/doi/10.1002/adsc.201600498/full, doi: 10.1002/adsc.201600498. [COBISS.SI-ID 1537274819]

COLOUR MEASUREMENT IN TEXTILES

Predmet:	Barvna metrika v tekstilstvu
Course title:	Colour measurement in textiles
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068746
Koda učne enote na članici/UL Member course code:	11293

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

Nosilec predmeta/Lecturer:	Sabina Bračko
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 letnik študija.	Entering the 3rd year of study.

Vsebina:	Content (Syllabus outline):
• 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; • Standardi na področju barvne metrike v tekstilstvu.	• 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; • Standards regarding colour measurement of textile materials.

Temeljna literatura in viri/Readings:

- GOLOB, V. in GOLOB, D. Teorija barvne metrike. V Interdisciplinarnost barve. Del 1, V znanosti. Maribor : DKS, 2001.

- OHTA, N. in ROBERTSON, A. R. Colorimetry : Fundamentals and Applications. Chichester : John Wiley & Sons, 2006.
- MCDONALD, R.: Colour Physics for Industry. Bradford : SDC, 1997; PARK, J.: Instrumental Colour Formulation : a Practical Guide. Bradford : SDC, 1993.
- CHRISTIE, R.M., MATHER, R. R., in WARDMAN, R. H. The Chemistry of Colour Application. Oxford : Blackwell Science, 2000.

Cilji in kompetence:	**Objectives and competences:**
Študentje se seznanijo s fizikalnimi osnovami elektromagnetnega sevanja, s povezavo med konstitucijo barvil in barvo, s teorijo barvne metrike ter z uporabo enačb za merjenje barv. **Kompetence**: • Sposobnost razumevanja temeljnih zakonitosti na področju nastanka in merjenja barve; • Poznavanje in uporaba CIE kolorimetrije; • Razumevanje različnih enačb za vrednotenje barvnih razlik; • Sposobnost numeričnega vrednotenja beline materiala ter posebnih pojavov pri zaznavanju barve metamerija, barvna konstanca).	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. **Competences**: • Understanding basic laws regarding colour phenomenon and colour measurement; • Knowledge and application of CIE colorimetry; • Understanding different equations for colour difference evaluation; • Expertise for numerical assessment of whiteness and special effects regarding colour perception (metamerism, colour constancy).

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • 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. • Zna izmeriti barvne razlike in instrumentalno ovrednotiti obstojnost obarvanj v skladu z ustreznimi standardi. • Sposoben je razložiti rezultate meritev obarvanja, beline in metamerije.	**Knowledge and understanding**: • 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. • He is able to measure colour differences and to instrumentally evaluate the resistance of dyeings according to appropriate standard methods. • He can explain the results of colour measurement, whiteness and metamerism.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, laboratorijske vaje.	Lectures, laboratory work.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	70,00 %	Written exam
Opravljene eksperimentalne vaje	30,00 %	Completed laboratory work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. 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].
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].

COMPUTER ASSISTED PROCESSES IN APPAREL MANUFACTURING

Predmet:	Računalniška priprava v konfekciji
Course title:	Computer assisted processes in apparel manufacturing
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068706
Koda učne enote na članici/UL Member course code:	10252

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

Nosilec predmeta/Lecturer:	Živa Zupin
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):**
• 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 razvoj krojev oblačil, izdelavo krojnih slik, izdelavo podporne tehnološke dokumentacije. • Povezovanje CAD sistemov za razvoj krojev in tehnološko pripravo s CAM sistemi v proizvodnji oblačil. • Uporaba računalniškega sistema za konfekcijsko proizvodnjo (razvoj osnovnih krojev, modeliranje krojev in izdelava krojne slike).	• Development in computerized systems for production and marketing in apparel manufacturing, importance and objectives of application. • CAD / CAM systems, computer integrated manufacturing in apparel industry. • Software packages for pattern development, pattern cutting, lay planning, technical support documentation. • Integration of CAD systems for pattern development and technological preparation with CAM systems in the manufacturing process. • Use of the CAD system in apparel production (pattern development, pattern modelling and lay-out planning).

Temeljna literatura in viri/Readings:

- BEAZLEY, A., in BOND, T. *Computer-Aided Pattern Design and Product Development*. Malden : Blackwell Publishing, 2003. ISBN - 1-4051-0283-7, COBISS.SI-ID - 1199216

- GRAY, S. *CAD/CAM in Clothing and Textiles*. London : Gower Publishing, 1998. ISBN - 0-566-07673-X, COBISS.SI-ID – 7798806.
- COLUSSY, M. K., Fashion design on computers. Upper Saddle River, N.J. : Prentice Hall, cop. 2001. ISBN - 0-13-083838-1, COBISS.SI-ID – 1193072.
- Navodila za uporabo CAD programa Gemini in drugo gradivo dostopno v spletni učilnici predmeta.

Cilji in kompetence:	**Objectives and competences:**
• Spoznati CAD/CAM sisteme v konfekcijski industriji, za pripravo in vodenje proizvodnje, za razvoj osnovnih krojev in modeliranje krojev oblačil in izdelavo krojnih slik. • Poznavanje osnovnih zmožnosti programskih paketov za razvoj krojev in tehnološko pripravo proizvodnje, ter specialnih paketov namenjenih individualnim naročilom, poznavanje programskih paketov za 3D vizualizacijo. Uporaba CAD sistema.	• Learning about CAD / CAM systems for the apparel industry, production preparation, production control, basic pattern block development, pattern modelling and lay-out planning. • Knowing the basic possibilities of software packages pattern developing, planning and technological preparation of production, as well as special packages used for custom-made products, knowing software packages for 3D visualization. Use of the CAD system.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• Sposobnost pravilne izbire programske opreme za konfekcijsko industrijo ter vključevanje le-te v rač. integrirano proizvodnjo, sposobnost uporabe CAD sistema za razvoj krojev, modeliranje, simulacije in tehnično pripravo proizvodnje. • Razume pomen uporabe 3D simulacij za prikaz izdelkov namenjen prodaji ter komunikaciji med oblikovalcem, tehnologom in kupcem. • Pozna strokovno terminologijo.	• Ability to select the right software for the apparel industry and integrate it with the computer integrated production, ability to use the CAD system for pattern development, modeling, simulations and technical preparation of production. • Understands the importance of using 3D simulations for sales and communication between designer, technologist and customer. • Knows the technical terminology.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, vaje na CAD sistemu.	Lectures, tutorial on CAD system.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	50,00 %	Written examination
Praktični kolokvij iz vaj	50,00 %	Practical colloquium from tutorial

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ZUPIN, Živa, KNIFIC, Karmen, PAVKO-ČUDEN, Alenka. Comfort properties of functional double bed knitted fabric for firefighters underwear. Tekstil ve konfeksiyon dergisi : journal of textile and apparel. 2023, vol. 33, no. 3, str. 249-261. ISSN 1300-3356. https://dergipark.org.tr/en/download/article-file/2224036, DOI: 10.32710/tekstilvekonfeksiyon.1065942.
2. ZUPIN, Živa, DIMITROVSKI, Krste, HLADNIK, Aleš, KOSTAJNŠEK, Klara. Elongation properties of woven fabrics with incorporated PBT yarns. The journal of The Textile Institute. https://www.tandfonline.com/doi/full/10.1080/00405000.2021.1907971, ISSN 0040-5000.
3. ZUPIN, Živa. Computer aided fabrics patterning. Tekstil, oblačilna kultura in moda = Textile, the culture of clothing and fashion : Museoeurope : the collected volume of the symposium 18.-19. 10. 2019. Maribor: Pokrajinski muzej, 2019. Str. 23-33, ilustr. Zbirka Museoeurope, 6. ISBN 978-961-94532-3-0.

4. ŠAJN GORJANC, Dunja, ZUPIN, Živa. Responses of fabric from lyocell/natural bamboo yarn to loading. The journal of The Textile Institute. 2017, vol. 108, no. 10, str. 1707-1714, ilustr. ISSN 0040-5000.
5. ZUPIN, Živa, CERAR, Urša, PODBEVŠEK, Tanja. Garment design according to zero waste design principle. V: ÜN, Çağrı (ur.), KIDIRYUZ, Merve (ur.). Full texts book : Cukurova 9th International Scientific Researches Conference : October 9-11, 2022, Adana, Turkey. Cukurova 9th International Scientific Researches Conference, October 9-11, 2022, Adana, Turkey. Ankara: IKSAD Publishing House, 2022. Str. 1721-1729. ISBN 978-625-8246-28-5. https://en.iksadkongre.net/_files/ugd/262ebf_712087d19a0843b786e9a55dd73c035e.pdf.

COMPUTER-ASSISTED DESIGN FOR PRINTING

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068709
Koda učne enote na članici/UL Member course code:	10255

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

Nosilec predmeta/Lecturer:	Marija Gorjanc
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.	Enrollment in the study year and course selection.

Vsebina:	Content (Syllabus outline):
• Razlika med vektorsko in rastrsko grafiko; • Uvoz, izvoz in pretvorba rasterske grafike v vektorsko in obratno; • Barvni prostor RGB in CMYK; • Priprava vzorcev glede na specifičnosti posamezne tiskarske tehnike, kot je filmski, transferni in digitalni tisk; • Postopki izdelave tiskovnih form za filmski tisk; • Postopki reprodukcije vzorcev za filmski in digitalni tisk; • Shranjevanje grafičnih datotek v različnih formatih; • Raportiranje; • Izdelava barvnih izvlečkov; • Strokovna terminologija.	• The difference between vector and raster graphics; • Import, export of graphics from bitmap to 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, such as flat screen, digital and transfer printing; • Production processes of printing forms for the flat screen printing; • Reproduction processes of patterns for flat screen and digital printing; • Saving graphics in different file formats; • Design of repeat pattern; • Creating colour separations; • Technical terminology.

Temeljna literatura in viri/Readings:

- COLUSSY, M. K., in GREENBERG, S. Rendering Fashion, Fabric & Prints. New Jersey : Pearson Education, 2005.
- DALY, T. Enciklopedija digitalne fotografije. Ljubljana : Tehniška založba Slovenije, 2004.
- KIMBERLY, K. A field guide to fabric design : design, print & sell your own fabric : traditional & digital techniques for quilting, home dec & apparel : Stash Books, C&T Publishing, Inc. CA, 2011.
- ALEXANDER, K., RAYNER, H. Pattern and Pallete Sourcebook, Rockport Publishers Inc. 2011.
- BRIGGS-GOODE, A. Printed textile design. Laurence King Publishing Ltd 2013.

Cilji in kompetence:	**Objectives and competences:**
• Študenti spoznajo računalniško grafiko za oblikovanje vzorcev in pripravo na tiskanje tekstilij s tehnikami filmskega, transfernega in digitalnega tiska; • Poznavanje programskega orodja za pripravo vzorcev za tisk glede na tehniko tiska; • Znanje prilagajanja zahtevam povpraševanja trga; • Povečana inženirska produktivnost.	• Students learn to use computer graphics for designing patterns in textile flat screen, digital and tranfer printing; • Understanding of software tools for preparation of printing patterns accoring to the printing technique; • Ability to adaptat to the market demand; • Increased engineering productivity.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Zna uporabljati grafične programe za pripravo vzorcev za tekstilni tisk.	**Knowledge and understanding**: • Able to use graphical software for designing and preparation of patterns for textile printing..

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminarji, individualne naloge, računalniške vaje.	Lectures, seminar (individual or group project work), computer exercises and guided individual work.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Izpit	40,00 %	Exam
Seminar	30,00 %	Seminar
Računalniške vaje	30,00 %	Computer exercise

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

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].
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].
3. 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];4. 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].
4. AVDIJAJ, 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. - 7. 2014. 2014. [COBISS.SI-ID 3026800].

5. GORJANC, Marija (avtor, mentor), SADAR, Almira. culT-SHIRT : motifs of Slovenian cultural heritage printed on T-shirt. V: SIMONČIČ, Barbara (ur.), TOMŠIČ, Brigita (ur.), GORJANC, Marija (ur.). *Book of abstracts*. 16th World Textile Conference AUTEX 2016, 8 - 10 June 2016, Ljubljana, Slovenia. Ljubljana: Faculty of Natural Sciences and Engineering, Department of Textiles, Graphic Arts and Design, 2016. Str. 197. ISBN 978-961-6900-16-4. [COBISS.SI-ID 3257200].

COMPUTER-ASSISTED DESIGN OF KNITTED FABRICS AND KNITWEAR

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068707
Koda učne enote na članici/UL Member course code:	10253

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

Nosilec predmeta/Lecturer:	Živa Zupin
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):**
• Spoznavanje koncepta CAD programov za računalniško podprto načrtovanje pletiv in pletenin; • Grafični prikaz, simbolni zapis, načrtovanje in simulacija osnovnih in zahtevnih pletiv in pletenin; • Računalniška priprava in obdelava vzorcev za žakarska pletiva; • Principi upravljanja barv pri računalniški pripravi kolekcije pletiv/pletenin; • Študij vpliva konstrukcijskih parametrov pletiv na vzorčenje pletiv in pletenin; • Barvno in strukturno vzorčenje pletiv in pletenin; • CAD sistemi v votkovem in snutkovnem pletilstvu; • Spoznavanje in uporaba računalniškega programa za oblikovanje votkovnega in snutkovnega pletiva.	• Getting to know the concept of CAD programs for computer-aided design of knitted fabrics an knitwear; • Graphic representation, symbolic notation, design and simulation of basic and complex knitted fabrics an knitwear; • Computer-aided preparation and processing of patterns for jacquard knitted fabrics an knitwear; • Principles of color management in computerized preparation of a collection of knitted fabrics an knitwear; • Study of the influence of knitting construction parameters on patterning of knitted fabrics an knitwear; • Color and texture patterning of knitted fabrics an knitwear; • CAD systems in weft and warp knitting. • Getting to know and using the softwear program for designing weft and warp knit constructions.

Temeljna literatura in viri/Readings:

- ZUPIN, Ž. Izročki predavanj predmeta Računalniško oblikovanje pletiv in pletenin.
- ZUPIN, Ž. Novosti na področju računalniškega oblikovanja tkanin, pletiv in pletenin na sejmih ITMA in Techtextil 2019. Tekstilec : glasilo slovenskih tekstilcev, 2019, vol. 62, priloga 2, str. si 123-si 133.
- PAVKO-ČUDEN, A. Kompozicija pletenin 1 (skripta). Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2008.
- PAVKO-ČUDEN, A. Kompozicija pletenin 2 (skripta). Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2008.
- PAVKO-ČUDEN, A. Računalniško oblikovanje pletiv in pletenin (skripta). Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2013.
- Promocijsko gradivo proizvajalcev CAD pletilskih sistemov / Promotional materials for CAD knitting systems producers
- Gradivo dostopno v spletni učilnici predmeta.

Cilji in kompetence:	**Objectives and competences:**
• Študent razume konstrukcijo pletiv ter brezšivnih pletenin ter njen vpliv na lastnosti in videz pletiv; • Pozna uporabo osnovnih in zahtevnejših vezav pri računalniškem načrtovanju pletiv in pletenin; • Pozna vpliv konstrukcijskih parametrov na videz in simulacijo pletiv in pletenin; • Pozna delo s CAD sistemom za vzorčenje votkovnih in snutkovnih pletiv in pletenin.	• The student understands the construction of knited fabrics and seamless knitwear and its influence on the properties and appearance of knitted fabrics; • Knows the use of basic and more complex structures in computer design of knitted fabrics and knitwear; • Knows the influence of construction parameters on the appearance and simulation of knitted fabrics and knitwear; • Knows how to work with the CAD software for sampling warp and weft knitted fabrics and knitwear.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• Samostojna uporaba CAD sistema za načrtovanje in oblikovanje osnovnih in bolj zahtevnih pletiv in pletenin ter njihove simulacije z različnimi konstrukcijskimi parametri; • Sposobnost uporabe strokovne pletilske terminologije.	• Independent use of the CAD software for the planning and design of basic and more complex knitted fabrics and knitwear and their simulation with different construction parameters; • Ability to use technical knitting terminology.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, računalniško oblikovanje simulacij pletenih struktur.	Lectures, computer-assisted design (simulation) of knitted structures.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	60,00 %	Written exam
Poročilo o vajah	40,00 %	Excercise report

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ZUPIN, Živa, KNIFIC, Karmen, PAVKO-ČUDEN, Alenka. Comfort properties of functional double bed knitted fabric for firefighters underwear. Tekstil ve konfeksiyon dergisi : journal of textile and apparel.

2023, vol. 33, no. 3, str. 249-261. ISSN 1300-3356. https://dergipark.org.tr/en/download/article-file/2224036, DOI: 10.32710/tekstilvekonfeksiyon.1065942.
2. ZUPIN, Živa. Novosti na področju računalniškega oblikovanja tkanin, pletiv in pletenin na sejmih ITMA in Techtextil 2019 = Novelties in computer-aided design of woven and knitted fabrics and knittwear at Techtextil and ITMA 2019. Tekstilec : glasilo slovenskih tekstilcev. [Tiskana izd.]. 2019, vol. 62, priloga 2, str. si 123-sl 133, ISSN 0351-3386. [COBISS.SI-ID 3694448]
3. ZUPIN, Živa, KNIFIC, Karmen, PAVKO-ČUDEN, Alenka. Comfort properties of functional double bed knitted fabric for firefighters underwear. V: PERRIN AKÇAKOCA KUMBASAR, Emriye (ur.). Book of proceedings. 15th International İzmir Textile & Apparel Symposium, IITAS 2021, October 26 - 27, 2021, İzmir-Turkey. Izmir: Ege University, Faculty of Engineering, Department of Textile Engineering, 2021. Str. 429-435, ISBN 978-605-338-329-1. http://www.iitas2021.com/en/. [COBISS.SI-ID 85826307]
4. ZUPIN, Živa, KOVAČIČ, Sara. Performance properties of double bed jacquard knitted fabrics for upholstery. V: KARDAŞLAR, Ahmet (ur.), MİKE, Faruk (ur.). Full text book : II. International Korkut Ata Scientific Researches Conference : October 7-8, 2023, Ankara, Turkey. II. International Korkut Ata Scientific Researches Conference, October 7-8, 2023, Ankara, Turkey. Ankara: IKSAD Publishing House, 2023. Str. 555-562, ilustr. ISBN 978-625-367-347-5. https://www.korkutataconference.org/_files/ugd/614b1f_16c34c13a6234f2782cbdff104c7aa9a.pdf.
5. ZUPIN, Živa, MOTNIKAR, Ana, ZOREC, Petja, GAJŠEK, Gašper, HRASTAR, Zala, MAVRIĆ, Zala, MIKLAVČIČ, Anita, PETROVČIČ, Elizabeta, REŠETIČ, Klara, SCHWARZBARTEL, Petra, TURK, Maruša, VIDMAR, Lara, VRHOVSKI, Iris. Exploring the history of hosiery and design of modern socks-socks. V: PERRIN AKÇAKOCA KUMBASAR, Emriye (ur.). Book of proceedings. 15th International İzmir Textile & Apparel Symposium, IITAS 2021, October 26 -27, 2021, İzmir-Turkey. Izmir: Ege University, Faculty of Engineering, Department of Textile Engineering, 2021. Str. 549-553, ISBN 978-605-338-329-1. http://www.iitas2021.com/en/. [COBISS.SI-ID 85731587]
6. ZUPIN, Živa. Computer aided fabrics patterning . V: CVIKL, Nives (ur.), HREN BRVAR, Maja (ur.). Tekstil, oblačilna kultura in moda = Textile, the culture of clothing and fashion : Museoeurope : the collected volume of the symposium 18.-19. 10. 2019. Maribor: Pokrajinski muzej: = Regional Museum, 2019. Str. 23-33, Zbirka Museoeurope, 6. ISBN 978-961-94532-3-0. [COBISS.SI-ID 3677296]

COMPUTER-ASSISTED DESIGN OF YARNS AND WOVEN FABRICS

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068708
Koda učne enote na članici/UL Member course code:	10254

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

Nosilec predmeta/Lecturer:	Živa Zupin
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):**
• Spoznavanje CAD programa za računalniško podprto načrtovanje tkanin. • Enostavne in zahtevnejše konstrukcije prej in njihova simulacija. • Načrtovanje in simulacija osnovnih in zahtevnih tkanin (večosnovne, večvotkovne, dvojne, votle). • Računalniška priprava in obdelava vzorcev za žakarske tkanine. • Konstrukcijske izvedbe različnih žakarskih vzorcev in simulacije z različnimi konstrukcijskimi parametri (vpliv na vzorčenje). • Različne možnosti barvnega in strukturnega vzorčenja tkanin.3D simulacija tkanin na objektih.	• Learning about the CAD for computer-aided design of woven fabrics. • Basic and complex structure of threads and their simulation. • Planning and simulation of basic and complex woven structures (warp/weft backed, double, hollow). • Computer aided planning and editing of images and patterns for jacquard fabrics. • Different implementations of Jacquard patterns and simulation with different construction parameters (influence on sampling). • Different possibilities of color and structure design of woven fabrics. 3D simulation of woven fabrics on the object.

Temeljna literatura in viri/Readings:

- BIZJAK, M., KOSTAJNŠEK, K. *Enostavne vezave tkanin*. 1. izd. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2017. 103 str., ilustr.

- DOBNIK-DUBROVSKI, P. Računalniško konstruiranje listnih tkanin : navodila za vaje. Maribor : Fakulteta za strojništvo, Oddelek za tekstilstvo, 2004.
- HALLETT, C., JOHNSTON, A., Fabric for fashion : the swatch book : over 100 sample fabrics. London : Laurence King, 2010, ISBN - 978-1-85669-669-2, COBISS.SI-ID – 2949232.
- CAD/CAM Arahne, Navodila in podpora,(https://www.arahne.si/sl/navodila-podpora/)
- 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.

Izbrani članki in gradivo v spletni učilnici predmeta

Cilji in kompetence:	**Objectives and competences:**
Študent razume konstrukcijo prej in njen vpliv na lastnosti ter videz tkanin, pozna uporabo osnovnih in zahtevnejših vezav pri računalniškem načrtovanju tkanin, pozna vpliv konstrukcijskih parametrov na videz in simulacijo tkanin, pozna delo s CAD sistemom za vzorčenje tkanin.	The student understands the construction of threads and their influence on the properties and appearance of fabrics, knows the use of basic and more complex weaves in computer-aided fabric design, knows the influence of construction parameters on the appearance and simulation of fabrics, knows how to use the CAD system for woven fabrics.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Samostojna uporaba CAD sistema za načrtovanje in oblikovanje prej, osnovnih in bolj zahtevnih tkanin ter simulacije tkanin z različnimi konstrukcijskimi parametri. Sposobnost uporabe strokovne terminologije.	Skilful use of CAD system for planning and designing threads, basic and more complex woven fabrics and fabrics simulation with various design parameters. Ability to use professional terminology.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja in vaje na CAD sistemu za tkanje.	Lectures and exercises with CAD system for weaving.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Izpit (pisni/ustni)	50,00 %	Written examination
Kolokcij iz vaj na CAD sistemu	50,00 %	Colloquium from practicum on the CAD system

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ZUPIN, Živa. Computer aided fabrics patterning. Tekstil, oblačilna kultura in moda, 2019 - Str. 23-33. ISBN - 978-961-94532-3-0.
2. ZUPIN, Živa, DIMITROVSKI, Krste, HLADNIK, Aleš, KOSTAJNŠEK, Klara. Elongation properties of woven fabrics with incorporated PBT yarns. The journal of The Textile Institute. 2022, vol. 113, no. 5, str. 846-856, ilustr. ISSN 0040-5000. https://www.tandfonline.com/doi/full/10.1080/00405000.2021.1907971, https://repozitorij.uni-lj.si/IzpisGradiva.php?id=141246, DOI: 10.1080/00405000.2021.1907971
3. ZUPIN, Živa. Computer aided fabrics patterning . V: CVIKL, Nives (ur.), HREN BRVAR, Maja (ur.). Tekstil, oblačilna kultura in moda = Textile, the culture of clothing and fashion : Museoeurope : the collected volume of the symposium 18.-19. 10. 2019. Maribor: Pokrajinski muzej: = Regional Museum, 2019. Str. 23-33, Zbirka Museoeurope, 6. ISBN 978-961-94532-3-0.
4. ZUPIN, Živa, HLADNIK, Aleš, DIMITROVSKI, Krste. Prediction of one-layer woven fabrics air permeability using porosity parameters. *Textile research journal*. 2012, vol. 82, no. 2, str. 117-128, ilustr. ISSN 0040-5175.

5. ZUPIN, Živa, PENDIĆ, Anica, DIMITROVSKI, Krste. 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: glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2010, letn. 53, št. 1/3, str. 33-49, ilustr. ISSN 0351-3386. [COBISS.SI-ID 2421104]

CREATIVITY AND PRODUCT DEVELOPMENT

Predmet:	Kreativnost in razvoj izdelka
Course title:	Creativity and product development
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068729
Koda učne enote na članici/UL Member course code:	11037

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

Nosilec predmeta/Lecturer:	Alenka Pavko Čuden, Andrej Demšar
Vrsta predmeta/Course type:	Obvezni/Compulsory
Jeziki/Languages:	Predavanja/Lectures: Angleščina, Slovenščina Vaje/Tutorial:

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Vpis v letnik študija. Za pristop h končnemu izpitu je pogoj opravljen seminar.	Enrolment into the study year. For the final exam, a completed seminar work is a prerequisite.

Vsebina:	Content (Syllabus outline):
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. **Seminar**: • Študij primerov: analiza uspešnih industrijskih izdelkov z vidika uporabnosti, varnosti, estetike in etike.	**Lectures**: • Introduction: the importance of creativity in the development of new products, creativity and engineering design, limits and contradictions in design and technology; • Ideas, creativity, innovation, improvements and inventions, the creative process, methods and techniques of stimulating creativity; • New products, the stages of new product development; The synergy of form and function of the product, characteristics of successful products. **Seminar**: • Case studies: analyses of successful industrial products in terms of usability, safety, aesthetics and ethics.

Temeljna literatura in viri/Readings:

1. Pečjak, V. Pot do novih idej : Tehnike kreativnega mišljenja. 2001, New Moment, No. 16, Ljubljana, 176 str.;
2. Norman, Donald A., Emotional design : why we love (or hate) everyday things, New York : Basic Books, 2005
3. Likar, Borut, Uspeti z idejo! : tehnike in metode ustvarjanja, razvoja in trženja idej, Ljubljana : Korona plus : Pospeševalni center za malo gospodarstvo, 2002

Cilji in kompetence:	**Objectives and competences:**
• Razumevanje pomena kreativnosti pri razvoju novih izdelkov; • Spoznavanje metod in tehnik zbiranja idej in pospeševanja kreativnosti; • Razumevanje odnosa med obliko in funkcijo izdelka; • Spoznavanje najuspešnejših in kultnih industrijskih izdelkov s poudarkom na tekstilnih izdelkih.	• Understanding the importance of creativity in new product development;gatheringcollecting ideas and stimulating creativity; • Understanding the relationship between form and function of a product; • Learning the most successful and iconic industrial products, with an emphasis on textiles.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• Sposobnost kreativnega inženirskega razmišljanja s pomočjo tehnik in metod za pospeševanje kreativnosti; • Sposobnost vodenja procesa razvoja novega izdelka.	• The ability to develop creative thinking using creativity stimulation techniques and methods; • The ability to manage the process of new product development

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja, podprta z interaktivnimi predstavitvami; • Aktivno sodelovanje v razpravah na določeno temo; • Samostojna priprava seminarske naloge z javno predstavitvijo.	• Lectures, supported by interactive presentations; • Active participation in discussions on a given topic; • Independent preparation of seminar paper including a public presentation.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	50,00 %	Written exam
Seminarska naloga	50,00 %	Seminar work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

Alenka Pavko Čuden

1. KODŽOMAN, Duje, ČOK, Vanja, PODLESEK, Anja, PAVKO-ČUDEN, Alenka. Fabric attractiveness using four sensory evaluators. *Fibres & textiles in Eastern Europe : an international magazine devoted to current problems of the textile industries in Central and Eastern Europe*. 2023, str. 1-14, ilustr. ISSN 1230-3666. https://sciendo.com/article/10.2478/ftee-2023-0041, DOI: 10.2478/ftee-2023-0041.
2. KODŽOMAN, Duje, PAVKO-ČUDEN, Alenka, ČOK, Vanja. Emotions and fashion: how garments induce feelings to the sensory system. *Industria textilæa*. 2023, vol. 74, no. 3, str. 346-355, ilustr. ISSN 1222-5347. http://doi.org/10.35530/IT.074.03.202253, DOI: 10.35530/IT.074.03.202253.

Andrej Demšar

1. DEMŠAR, Andrej, DIMITROVSKI, Krste, GREGOR-SVETEC, Diana, SIMONČIČ, Barbara, KAVKLER, Katja, ZUPIN, Živa. Hidrofilna polipropilenska vlakna : končno poročilo o rezultatih raziskav : bilateralni projekt med Republiko Slovenijo in republiko Poljsko v letih 2010 in 2011 : šifra

projketa: BI-PL/10-11-021 = Hydrophilic polypropylene fibres = Hydrofilowe włókna polypropylenowe. Ljubljana: Univerza v Ljubljani, 2012.
2. DIMITROVSKI, Krste, NIKOLIĆ, Momir, FORTE-TAVČER, Petra, DEMŠAR, Andrej. Raziskave uporabe prevodnih vlaken in niti za izdelavo tekstilij z visoko dodano vrednostjo za različna področja in namene uporabe : končno poročilo, šifra projekta BI-TR/08-10-002 = Investigation of the use of conductive fibres and yarns in the production of high value added textile products in various application areas : final report, BI-TR/08-10-002. Ljubljana: Univerza v Ljubljani, Naravoslovnotehniška fakulteta - OT, 2010.
3. RIJAVEC, Tatjana, BIZJAK, Matejka, DEMŠAR, Andrej, JEVŠNIK, Simona, KLANČNIK, Maja, NIKOLIĆ, Momir, SLUGA, Franci. Razvoj tekstilij iz novih vlaken iz obnovljivih surovinskih virov : zaključno poročilo o rezultatih raziskovalnega projekta ARRS L2-9318. Ljubljana: Naravoslovnotehniška fakulteta, 2010.
4. SIMONČIČ, Barbara, FORTE-TAVČER, Petra, BIZJAK, Matejka, PAVKO-ČUDEN, Alenka, DEMŠAR, Andrej, TOMŠIČ, Brigita, GORJANC, Marija, KERT, Mateja, ŠAJN GORJANC, Dunja, RIJAVEC, Tatjana, ZUPIN, Živa. TECLO - Textile and Clothing Knowledge Alliance. Future textile and clothing managers for export, marketing, innovation, sustainability and entrepreneurship oriented companies. Ljubljana: Faculty of Natural Sciences and Engineering, Department of Textiles, 2014.

DEVELOPMENT OF CLOTHING PATTERNS

Predmet:	Razvoj krojev oblačil
Course title:	Development of clothing patterns
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068741
Koda učne enote na članici/UL Member course code:	11313

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

Nosilec predmeta/Lecturer:	Matejka Bizjak , Živa Zupin
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 letnik študija.	Enrolment into study year.

Vsebina:	Content (Syllabus outline):
• oblačilna antropometrija, standardi s področja oblačilne antropometrije • konstrukcijski sistemi in razlike med njimi • konstrukcija osnovnih krojev oblačil • lastnosti tekstilij in njihov vpliv na konstrukcijo oblačil • osnove modeliranja osnovnih krojev oblačil • tehnična skica ter prenos na konstrukcijo oblačila • osnove gradiranja krojnev	• clothing anthropometry, standards in the field of clothing anthropometry, • body measurement charts and their differences • construction of basic clothing pattern • influence of textile properties on construction of clothing pattern • principles of modelling of clothing pattern • technical sketching and transfer to clothing patterns • pattern grading

Temeljna literatura in viri/Readings:

- Abram-Zver, Marta: Vrhnja ženska oblačila : osnove konstruiranja, Velenje : Modart, 2004
- Abram-Zver, Marta: Ženska obleka : osnove konstruiranja, 1. izd. - Velenje : ModART, 2004
- Kregar, Marija Mojca: Ženske hlače : osnove konstruiranja, 1. izd. - Velenje : Modart, 2007
- Malalan, Ana: Superkrojenje : naučite se izdelati oblačila po svoji meri in okusu, priročnik, 2. natis. - Ljubljana : Superanselma, 2014
- Aldrich, Winifred: Metric pattern cutting for women´s wear. 5th edition, Oxford ; Malden ; Carlton : Blackwell Publishing, 2008

- System M. Müller&Sohn; Schnittkonstruktionen für RÖCKE und HOSEN, Rundschau-Verlag Otto G. Königer GmbH&Co., München, 1996.
- System M. Müller&Sohn; Schnittkonstruktionen für KLEIDER und BLUSEN, Rundschau-Verlag Otto G.
- Königer GmbH&Co., München, 1997.
- Annegret Brinkmann-Stieler; DOB-Gradierung Schnitt-Know-how für Industrie und Handwerk, Rundschau-Verlag Otto G. Königer GmbH&Co., München, 2001.
- Revije **Rundschau** (mesečna izdaja) moška + ženska

Cilji in kompetence:	**Objectives and competences:**
• razumevanje pomena oblačilne antropometrije v procesu razvoja krojev oblačil in poznavanje standardov s tega področja • poznavanje prenosa telesnih mer v postopek konstrukcije osnovnih krojev oblačil • sposobnost upoštevanja lastnosti tekstilij na konstrukcijo in modelacijo krojev oblačil • poznavanje in izris tehnične modne skice • samostojna konstrukcija in modelacija osnovnih krojev oblačil • poznavanje gradiranja krojev oblačil • poznavanje strokovne terminologije	• understanding of the importance of garment anthropometry in the process of developing clothing patterns and knowledge of standards in this area. • understanding of the transfer of physical dimensions of the body in the process of basic clothing pattern construction. • ability to consider textile material properties in the process of clothing pattern construction and modelling. • knowledge and ability to draw technical sketches • to enable independent construction and modelling of selected garment patterns. • understanding of the principle of pattern grading • knowledge of technical terminology

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • poznavanje področja antropometrije in standardov s tega področja • poznavanje prenosa telesnih mer v postopek konstrukcije in modelacije krojev oblačil • izdelava tehnične modne skice in upoštevanje lastnosti materiala na konstrukciji in modelacijo krojev • samostojna konstrukcija izbranih krojev	**Knowledge and understanding:** • knowledge of anthropometry and standards from this area • knowledge of the transfer of physical measurements in the process of pattern construction and modelling. • elaboration of technical sketches and consideration of textile material properties in pattern construction and modelling • independent pattern construction

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminar, laboratorijske vaje	Lectures, seminars, laboratory work.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	60,00 %	Written exam
Seminarska naloga	20,00 %	Seminar work
Vaje	20,00 %	Laboratory work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

Živa Zupin

1. ZUPIN, Živa, DIMITROVSKI, Krste, HLADNIK, Aleš, KOSTAJNŠEK, Klara. Elongation properties of woven fabrics with incorporated PBT yarns. The journal of The Textile Institute. 2022, vol. 113, no. 5,

str. 846-856, ilustr. ISSN 0040-5000. https://www.tandfonline.com/doi/full/10.1080/00405000.2021.1907971, https://repozitorij.uni-lj.si/IzpisGradiva.php?id=141246, DOI: 10.1080/00405000.2021.1907971

2. ZUPIN, Živa, HLADNIK, Aleš, DIMITROVSKI, Krste. Prediction of one-layer woven fabrics air permeability using porosity parameters. *Textile research journal*. 2012, vol. 82, no. 2, str. 117-128, ilustr. ISSN 0040-5175.
3. ZUPIN, Živa, CERAR, Urša, PODBEVŠEK, Tanja. Garment design according to zero waste design principle. V: ÜN, Çağrı (ur.), KIDIRYUZ, Merve (ur.). Full texts book : Cukurova 9th International Scientific Researches Conference : October 9-11, 2022, Adana, Turkey. Cukurova 9th International Scientific Researches Conference, October 9-11, 2022, Adana, Turkey. Ankara: IKSAD Publishing House, 2022. Str. 1721-1729. ISBN 978-625-8246-28-5. https://en.iksadkongre.net/_files/ugd/262ebf_712087d19a0843b786e9a55dd73c035e.pdf.
4. ZUPIN, Živa. Computer aided fabrics patterning = [Računalniško podprto vzorčenje tkanin]. V: CVIKL, Nives (ur.), HREN BRVAR, Maja (ur.). Tekstil, oblačilna kultura in moda = Textile, the culture of clothing and fashion : Museoeurope : the collected volume of the symposium 18.-19. 10. 2019, (Zbirka Museoeurope, 6). Maribor: Pokrajinski muzej: = Regional Museum. 2019, str. 23-33, ilustr.

Matejka Bizjak

1. JEVŠNIK, Simona, KALAOĞLU, Fatma, ERYÜRÜK, Hanife, BIZJAK, Matejka, STJEPANOVIĆ, Zoran. Evaluation of a garment fit model using AHP. Fibres & textiles in Eastern Europe : an international magazine devoted to current problems of the textile industries in Central and Eastern Europe. 2015, vol. 23, iss. 2(110), str. 116-122.
2. KOSTAJNŠEK, Klara, PEULIĆ, Svjetlana, BIZJAK, Matejka. Design and development of a jacquard fabric for zero- waste garments. V: PERRIN AKÇAKOCA KUMBASAR, Emriye (ur.). *Book of proceedings*. 16th International İzmir Textile & Apparel Symposium, IITAS 2023, October 25 - 27, 2023, İzmĩr-Türkïye. Izmir: Ege University, Faculty of Engineering, Department of Textile Engineering, 2023. Str. 440-443, ilustr. ISBN 978-605-338-430-4. https://drive.google.com/file/d/1vZ8jTFk01R6uCHjadZ10f_SFFgf3EpFh/view. [COBISS.SI-ID 173478915]
3. BIZJAK, Matejka. Texprocess 2022 – Več kot napredek = Texprocess 2022 – More than progress. *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2023, vol. 66, priloga 1, str. si 22-si 29, ilustr. ISSN 0351-3386. [COBISS.SI-ID 161366787]

DIGITAL IN DESIGN

Predmet:	Digitalno v oblikovanju
Course title:	Digital in Design
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code: 0642823

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

Nosilec predmeta/Lecturer: Karin Košak, Tanja Nuša Kočevar

Vrsta predmeta/Course type: izbirni/elective

Jeziki/Languages:

Predavanja/Lectures:	Angleščina, Slovenščina
Vaje/Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Vpis v letnik študija.	Enrolment in the study year.

Vsebina:	Content (Syllabus outline):
• Spoznavanje programske opreme in grafičnih vmesnikov specializiranih programov za proces oblikovanja in načrtovanje tekstilij in oblačil. • 2D in 3D računalniška grafika za oblikovanje oblačil, modnih dodatkov ter tekstilnih elementov za interier. • 3D modeliranje in metode virtualnega prototipiranja v procesu oblikovanja oblačil. • 3D tisk na področju oblikovanja tekstilij, oblačil in dodatkov. • Vpliv digitalizacije na proces oblikovanja, izdelave, promocije in prodaje tekstilij in oblačil. • Pregled smernic na področju digitalizacije pri oblikovanju, izdelavi, promociji in prodaji produktov mode in oblikovanja. Virtualnost oblikovalskega procesa in končnega produkta. • Simulacija oblačila in modnega dodatka na telesu, simulacija tekstilnega elementa in dodatka v interierju v 2D in 3D tehnologijah. Uporaba digitalnih tehnologij v procesu vizualne komunikacije oblačil in dodatkov. Priprava	• Knowledge of software and graphic interfaces of specialized programs for the process of design and planning of textiles and clothing. • 2D and 3D computer graphics for the design of clothing, fashion accessories and textile elements for interior decoration. • 3D modeling and virtual prototyping methods in the field of design of textiles, clothing and accessories. • The impact of digitalization on the process of design, production, promotion and sale of textiles and clothing. • Review of guidelines in the field of digitalization in the design, production, promotion and sale of fashion and design products. Virtuality of the design process and the final product. • Simulation of clothing and fashion accessories on the body, simulation of textile elements and accessories in interiors in 2D and 3D technologies. The use of digital technologies in the process of visual communication of clothing and accessories. Preparation of digital files for

digitalnih datotek za tehnologije laserskega izreza, vezenin in 3D tiska. **Seminar:** • Utrjevanje teoretičnih osnov s pomočjo uporabe 2D in 3D tehnologij v oblikovanju.	laser cutting, embroidery and 3D printing technologies. **Seminar:** • Deepening the theoretical foundations through the use of 2D and 3D technologies in design.

Temeljna literatura in viri/Readings:

- TALLON, K. Digital fashion illustration with Photoshop and Illustrator, London : Batsford, 2008
- TALLON, K. Digital fashion print, London : Batsford, 2011
- BOWLES, M., CERI, I. Digital textile design, London : Laurence King, 2009
- QUINN, B. Textile futures : fashion, design and technology, Oxford : Berg, 2010 Makryniotis, T. 3D fashion design : technique, design and visualization, London: Batsford, 2015
- https://support.clo3d.com/
- https://www.adobeforfashion.com/illustrator-tutorials.html

Cilji in kompetence:	**Objectives and competences:**
• Predmet predstavi študentu najpomembnejše trende na področju digitalnih tehnologij za vzorčenje tekstilij, oblikovanje oblačil, 2D in 3D predstavitev oblačil, modnih dodatkov, tekstilnih elementov v interierju ter izdelavo tehničnih skic. • Študent pozna in razume tudi smernice in trende novih digitalnih načinov za promocijo in prodajo tako fizičnih kot virtualnih oblačil in dodatkov. • Študent razvija prostorsko inteligenco ter sposobnost vizualiziranja in ustvarjanja • iluzije tretje dimenzije. • Študent spozna možnosti uporabe digitalnih tehnik in postopkov pri oblikovanju oblačil, modnih dodatkov, tekstilij in dodatkov v interierju.	• The course introduces the student with the main trends in digital technologies for textiles, apparel design, 2D and 3D presentation of clothing, fashion accessories, textile elements in interior design, and the creation of technical sketches. • The student also knows and understands the guidelines and trends of new digital ways to promote and sell both physical and virtual clothing and accessories. • The student develops spatial intelligence and the ability to visualize and create illusions of the third dimension. • The student learns the possibilities of using digital techniques and processes in the design of clothing, fashion accessories, textiles, and interior accessories.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Študent pozna, razume in zna uporabljati osnovna orodja in postopke za razvoj, predstavitev in izdelavo izbranega vzorca, oblačila, tehnične skice, tekstilnega izdelka ali modnega dodatka v 2D in 3D tehnologijah. • Študent je sposoben sodelovanja z oblikovalcem pri 2D in 3D tehnologijah procesa snovanja in predstavitve tekstilij in oblačil.	**Knowledge and understanding:** • The student knows and understands how to use basic tools and processes to develop, present, and produce a selected pattern, garment, technical sketch, textile product, or fashion accessory in 2D and 3D technologies. • The student will be able to collaborate with a designer in the design and presentation of textiles and apparel using 2D and 3D technologies.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminarji, raziskovalni seminarji, projektno delo.	Lectures, seminars, research seminars, project work.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit.	50,00 %	Examination.
Seminar.	50,00 %	Seminar.

Ocenjevalna lestvica: **Grading system:**

5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

Karin Košak

1. KOŠAK, Karin. *Razvoj oblikovanja*. Ljubljana: NTF, OT, 2009. 116 str. ISBN 978-961-6045-76-6. [COBISS.SI-ID 247472384/ univ. učbenik z recenzijo - tiskana oblika in 1 optični disk (CD-ROM)
2. KOŠAK, Karin, MUCK, Deja, KOČEVAR, Tanja Nuša, ČUK, Marjeta, MORE, Alenka. 3D natisnjen in lasersko izrezan nakit na temo Plečnikove arhitekture = 3D printed and laser cut jewlerly on the topic of Plečnik's architecture. V: GORJANC, Marija (ur.), SIMONČIČ, Barbara (ur.). *Sodobni tekstilni materiali : zbornik izvlečkov*. 48. simpozij o novostih v tekstilstvu, Ljubljana, 6. junij 2019. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2019. Str. 47.
3. KOŠAK, Karin. Comparison of trends of the 21st century : design, architecture, fashion through the perspective of the social aspect of sustainability, people. V: *Abstracts : program*. International Conference on Design and Light Industry Technologies, 19 - 20 November 2014, Budapest, Hungary. Óbuda: Óbuda University, Sándor Rejtő Faculty of Light Industry and Environmental Engineering, 2014. Str. 33.
4. KOŠAK, Karin, MUCK, Deja, ČUK, Marjeta, KOČEVAR, Tanja Nuša. 3D printed jewellery design process based on sculpture inspiration. V: DEDIJER, Sandra (ur.). *Proceedings*. 10th International Symposium on Graphic Engineering and Design GRID 2020, Novi Sad, November 12-14th, 2020. Novi Sad: Faculty of Technical Sciences, Department of Graphic Engineering and Design, 2020. Str. 507-514, ilustr. International Symposium on Graphic Engineering and Design GRID.

Tanja Nuša Kočevar

1. KOČEVAR, Tanja Nuša, DRUSANY, Manca. Designing a pattern with 3D printing on textiles. V: PERRIN AKÇAKOCA KUMBASAR, Emriye (ur.). Book of proceedings. 15th International İzmir Textile & Apparel Symposium, IITAS 2021, October 26 -27, 2021, İzmir-Turkey. Izmir: Ege University, Faculty of Engineering, Department of Textile Engineering, 2021. Str. 233-239, ilustr.
2. GABRIJELČIČ TOMC, Helena (avtor, ilustrator), KOČEVAR, Tanja Nuša (avtor, ilustrator), ISKRA, Andrej (avtor, ilustrator). 3D animacije ustvarjanje od giba do simulacije. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2021. 211 str., ilustr.
3. KOČEVAR, Tanja Nuša, NAGLIČ, Barbara, GABRIJELČIČ TOMC, Helena. 3D visualisation of a woman's folk costume. V: IOANNIDES, Marinos (ur.). Digital cultural heritage : Final Conference of the Marie Skłodowska-Curie Initial Training Network for Digital Cultural Heritage, ITN-DCH 2017, Olimje, Slovenia, May 23-25, 2017 : revised selected papers. Cham: Springer International Publishing, 2018. Str. 304-323, ilustr. Lecture notes in computer science, 10605.

DIPLOMA WORK

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068745
Koda učne enote na članici/UL Member course code:	10008

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

Nosilec predmeta/Lecturer:

Vrsta predmeta/Course type:

Jeziki/Languages:		
	Predavanja/Lectures:	
	Vaje/Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v 3. letnik študija. Opravljene vse ostale študijske obveznosti. Odobrena tema diplomske naloge.	Enrollment in the 3rd year of study. Completion of all other degree requirements. Confirmation of thesis topic.

Vsebina:	**Content (Syllabus outline):**
Diplomsko delo je lahko interdisciplinarno naravnano ali ožje specializirano na poljubno področje znotraj strokovnih vsebin s področja, ki ga pokriva prvostopenjski študij Načrtovanje tekstilij in oblačil. Diplomsko delo vsebuje: • namen dela, predstavitev problema oz. razlog za raziskavo, • pregled znanj iz literature oz. tuje in domače izkušnje, • nakazane rešitve problema, • sklepe in priporočila. Diplomsko delo študent izdela pod mentorstvom izbranega učitelja, ga javno predstavi in zagovarja.	The thesis may be interdisciplinary or specialized in any area within the subject study from the area of the first degree in Textile and Clothing Planning. The thesis includes: • the purpose of the thesis, the statement of the problem or reason for an investigation, • the review of literature and knowledge and/or foreign and domestic experience, • the implicit solution of the problem, • conclusions and recommendations. Student completes the thesis under the supervision of a teacher and ends the study with the public presentation and defend it.

Temeljna literatura in viri/Readings:

Izbrana literatura glede na nalogo, ki jo opravlja. / Selected readings, depending on the thesis he/she is working on.

Cilji in kompetence:	Objectives and competences:
Cilji: • Študent osvoji delo v praksi. • Izdelava diplomskega dela študenta usposobi za reševanje strokovnih ali preprostejših znanstveno-raziskovalnih problemov na področjih, ki jih pokriva prvostopenjski študijski program Načrtovanje tekstilij in oblačil. **Kompetence:** • Praktično uporabi med študijem pridobljeno znanje.	**Objectives :** The student becomes familiar with the work in practice. Through thesis work, the student becomes capable of dealing with professional or simpler scientific research problems in the areas covered by the first level study program in Textile and Clothing Planning. **Competences:** • Practical application of the knowledge acquired in the course.

Predvideni študijski rezultati:	Intended learning outcomes:
• Študent razume stroko v širšem kontekstu kot interdisciplinarno panogo • Dokaže samostojno reševanje konkretnih problemov s povezovanjem temeljnih znanj, ki jih uporabi pri izdelavi diplomskega dela. • Pridobi nove informacije, jih kritično analizira in uporabi pri določitvi problemov in njihovem reševanju. • Pridobljeno znanje in rešitve konkretnega problema v diplomskem delu je sposoben podati in zagovarjati pred širšim krogom zainteresiranih uporabnikov.	• The student understands the profession in a broader context as an interdisciplinary industry. • The student demonstrates the ability to solve concrete problems by integrating basic skills and using them to produce a consistent thesis. • The student synthesizes and analyzes new information and uses it to identify and solve problems. • The student is able to present and defend the acquired knowledge and solutions to a specific problem in the thesis to a wider audience of interested users.

Metode poučevanja in učenja:	Learning and teaching methods:
Praktično delo, študij literature, konzultacije z mentorjem, pisanje diplomskega dela.	Practical work, study of literature, consultations with supervisor, writing of thesis.

Načini ocenjevanja:	Delež/Weight	Assessment:
ocena pisnega diplomskega dela	70,00 %	assessment of the written thesis
ocena javne predstavitve in zagovora diplome	30,00 %	assessment of public presentation and the thesis defence

Ocenjevalna lestvica:	Grading system:

Reference nosilca/Lecturer's references:

Reference nosilcev razvidne iz učnih načrtov pri posameznih predmetih v okviru prvostopenjskega študija Načrtovanje tekstilij in oblačil. / References of lecturers listed in the curricula of each course in the Textile and Clothing Planning program

DYEING TECHNOLOGY

Predmet:	Tehnologija barvanja
Course title:	Dyeing technology
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068750
Koda učne enote na članici/UL Member course code:	10026

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

Nosilec predmeta/Lecturer:	Marija Gorjanc
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 letnik študija.	Enrolment into the study year.

Vsebina:	Content (Syllabus outline):
• Zgradba barvil; • Vloga tekstilnih pomožnih sredstev pri procesu barvanja in poobdelav; • Priprava tehnološke vode za barvanje; • Tehnološki postopki barvanja in strojna oprema; • Barvila in pbarvanje naravnih, kemičnih in sintetičnih vlaken ter njihovih mešanic; • Barvne obstojnosti .	• Structure of dyes; • The role of auxiliaries in the dyeing process and after-treatments; • Preparation of process water for dyeing; • Dyeing machinery for dyeing processes; • Dyes and dyeing of natural, chemical and synthetic fibres and their blends • Colour fastness properties of dyed textiles.

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 : Blacke 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, Cambridege : The Royal Socienty 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:	**Objectives and competences:**
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; • Sposobnost prilagajanja zahtevam tržišča, hiter odziv na spremembe in vpeljava novih postopkov barvanja v prakso; • Sposobnost in razumevanje uporabe ustreznih standardiziranih metod za preizkušanje obstojnosti obarvanj.	**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; • The ability to adapt to market demand, rapid response to changes and the introduction of new dyeing processes into the practice; • The ability to understand and use appropriate standardized methods for testing colour fastness properties of dyed fabric.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• 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; • Zna načrtovati in ustrezno izbrati postopke poobdelave za izboljšanje obstojnosti obarvanj, zna izvesti standarde metode testiranja za preizkušanje obstojnosti obarvanj, na pobarvanem materialu.	• 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; • 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.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminarsko delo in vaje.	Lectures, coursework and practices.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Izpit	60,00 %	Exam
Vaje	20,00 %	Practice
Seminar	20,00 %	Seminar

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. KERT, Mateja, KRKOČ, Vida, GORJANC, Marija. Influence of optical brightening agent concentration on properties of cotton fabric coated with photochromic microcapsules using a pad-dry- cure process. *Polymers*. 2019, vol. 11, iss. 12, 12 str., ilustr. ISSN 2073-4360. https://www.mdpi.com/2073-4360/11/12/1919, DOI: 10.3390/polym11121919. [COBISS.SI-ID 3681392].
2. GORJANC, Marija, KERT, Mateja, MUJADŽIĆ, Amra, SIMONČIČ, Barbara, FORTE-TAVČER, Petra, TOMŠIČ, Brigita, KOSTAJNŠEK, Klara. Cationic pretreatment of cotton and dyeing with Fallopia japonica leaves = Kationska predobdelava bombaža in barvanje z listi japonskega dresnika (Fallopia Japonica). *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2019, vol. 62, [no.] 3, str. 181-186, ilustr. ISSN 0351-3386. DOI: 10.14502/Tekstilec2019.6181-186. [COBISS.SI-ID 3642480].
3. GORJANC, Marija, MOZETIČ, Miran, PRIMC, Gregor, VESEL, Alenka, SPASIĆ, Kosta, PUAČ, Nevena, PETROVIĆ, Zoran Lj., KERT, Mateja. Plasma treated polyethylene terephthalate for increased embedment of UV-responsive microcapsules. *Applied Surface Science*. [Print ed.]. 15. Oct. 2017, vol. 49, str. 224-234, ilustr. ISSN 0169-4332. http://www.sciencedirect.com/science/article/pii/S0169433217312126, DOI: 10.1016/j.apsusc.2017.04.177. [COBISS.SI-ID 3376496].
4. ČUK, Nina, GORJANC, Marija. Natural dyeing and UV protection of raw and bleached/ mercerised cotton = UV zaščita surovega in beljenega/merceriziranega bombaža barvanega z naravnimi barvili. *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2017, vol. 60, no. 2, str. 126-136, ilustr. ISSN 0351-3386. http://www.tekstilec.si/?p=2229&lang=en, DOI: 10.14502/Tekstilec2017.60.00-00. [COBISS.SI-ID 3378800].
5. GORJANC, Marija, ŠALA, Martin. Durable antibacterial and UV protective properties of cellulose fabric functionalized with Ag/TiO2 nanocomposite during dyeing with reactive dyes. *Cellulose*. 2016, vol. 23, no. 3, str. 2199-2209. ISSN 0969-0239. http://link.springer.com/article/10.1007/s10570-016-0945-7, DOI: 10.1007/s10570-016-0945-7. [COBISS.SI-ID 3231856].

ECOLOGY IN TEXTILES AND APPAREL

Predmet:	Ekologija v tekstilstvu in oblačilstvu
Course title:	Ecology in textiles and apparel
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068747
Koda učne enote na članici/UL Member course code:	11139

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

Nosilec predmeta/Lecturer:	Petra Eva Forte Tavčer
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 letnik študija.	Enrolment into study year.

Vsebina:	Content (Syllabus outline):
• 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; • Oporečne substance na tekstilijah in njihov vpliv na zdravje ljudi; • Ravnanje z odpadki na splošno in ravnanje s tekstilnimi odpadki; Postopki recikliranja in razgradnje odpadnih tekstilij; • Tehnološke odpadne vode – nastanek, analitika in čiščenje; • Ponovna uporabe tehnoloških odpadnih vod; • Varčevanje z vodo, elektriko in toploto v proizvodnji; • Emisije v zrak.	• 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; • Treatment of solid waste in general and textile waste; • Recycling of textiles and biodegradation of textiles; • Technological effluents – origin, analysis and treatment; • Reuse of water; • Saving of water and energy in production of textiles; Air pollution.

Temeljna literatura in viri/Readings:

- Milenko Roš, Sodobni postopki čiščenja odpadnih vod, Zelena Slovenija, 2015.
- Jani Zore, Gospodarjenje z odpadki, Zelena Slovenija, 2015
- Jana Sterže, Varstvo okolja, Zelena Slovenija, 2013
- Vanesa Čanji, Prehod v zeleno gospodarstvo, Zelena Slovenija, 2018
- Adrijana Viler Kovačič, Okoljevarstvena zakonodaja, Zelena Slovenija, 2010
- WANG Y. Recycling in Textiles, Woodhead Publishing, Cambridge, 2006.
- MIRAFAB M., HORROCKS A.R. Ecotextiles, Woodhead Publishing, Cambridge, 2007

Cilji in kompetence:	**Objectives and competences:**
Študent spozna: • Vpliv procesov tekstilne industrije in tekstilij na okolje; • Okolju prijaznejše tekstilne surovine, sredstva in postopke izdelave tekstilij; • Vpliv kemikalij in materialov na zdravje ljudi; • Osnove okoljske analitike in tehnologije čiščenja tehnoloških odpadnih vod in zraka; • Problematiko tekstilnih odpadkov; okoljsko zakonodajo in ekološke standarde.	Learning about: • Influences of processes in textile industry on the environment; • Environment-friendlier textile materials, chemicals and processes in production of textiles; • Impact of chemicals and materials on human health; • Basics of environmental analysis and technologies of cleaning water and air; • Environmental legislation and standards.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Vplivov tekstilne industrije na okolje; • Okolju prijaznejših tekstilnih materialov, postopkov in izdelkov; • Vpliva tekstilij in kemikalij na zdravje ljudi; • Kriterijev za pridobitev ekoloških oznak; • Postopkov predelave, recikliranja in odlaganja tekstilnih odpadkov; • Zakonodaje in standardov s področja varovanja okolja; • Okoljske analitike; • Osnov tehnologije čiščenja odpadnih tehnoloških vod in zraka.	**Knowledge and understanding:** • Influence of textile industry on the environment; • Environment-friendlier textile materials, process and products; • Influence of textiles and chemicals on human health; • Eco-labelling and acquisition criteria; • Treatment, recycling and disposal of textile waste; • Legislation and standardisation on environmental protection; • Environmental analysis; • Treatment of effluents.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminarji, laboratorijske vaje.	Lectures, seminars, laboratory work.

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

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

- FORTE-TAVČER, Petra, BRENČIČ, Katja, FINK, Rok, TOMŠIČ, Brigita. Influence of hydrogen peroxide on disinfection and soil removal during low-temperature household laundry. *Molecules*. 2022, vol. 27, iss. 1, str. 1-11 .

- KOLBL REPINC, Sabina, FORTE-TAVČER, Petra, STRES, Blaž. Potential for valorization of dehydrated paper pulp sludge for biogas production : addition of selected hydrolytic enzymes in semi-continuous anaerobic digestion assays. *Energy*. 2017, vol. 126, str. 326-334.
- PRELOG, Karla, FORTE-TAVČER, Petra. Čiščenje odpadne vode v barvarni tekstilnega materiala s flokulacijo in ponovna uporaba očiščene vode = Wastewater treatment in dyehouse using flocculation method and water re-use. *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2017, vol. 60, no. 2, str. 137-151.

ENGLISH FOR SPECIFIC PURPOSES

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068743
Koda učne enote na članici/UL Member course code:	10941

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

Nosilec predmeta/Lecturer:	Barbara Luštek Preskar, prof. angl. in nem.
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 letnik. Pogoj za pristop k izpitu: 90 % prisotnost na srečanjih.	Enrolment into study year. Requirement to sit the exam: 90% presence at seminar.

Vsebina:	Content (Syllabus outline):
• Branje in strategije branja, uvajanje v diskurz strokovnih in tehničnih besedil s področja tekstilstva (vzorci, slog oblačenja, trajnostnost in recikliranje, oznake tekstilij, vlakna, apretura, pametne tekstilije itd.); • Določanje ključnih besed, pisanje povzetkov; • Uporaba slovarjev, glosarjev in drugih informacijskih virov; • Pisanje sestavkov in poročil; • Opisovanje grafov; • Poslovna komunikacija (pisanje pisem, prošenj, življenjepisa, javno nastopanje); • Sodelovanje v razpravah.	• Reading and reading strategies, introduction into discussing technical and professional texts from the field of textiles (patterns, styles, sustainability and recycling, textile labelling, fibres, finishing, smart textiles etc.); • Defining and understanding keywords, writing abstracts; • Using dictionaries, glossaries and other information sources,; • Writing reports; • Describing graphs; • Business communication (business correspondence, writing letters of application and CVs, giving public presentations); • Taking active part in discussions.

Temeljna literatura in viri/Readings:

1. LUŠTEK PRESKAR, B., English for Specific Purposes – Textile Engineering. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2011;
2. Didaktiziran material, ki ga pripravi predavatelj sam.
3. Materiali dostopni na spletnih straneh na temo stroke.
4. Spletni slovarji in glosarji, splošni ter terminološki.

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:	**Objectives and competences:**
Dograjevanje splošnega znanja angleščine na višjo stopnjo z uvajanjem strokovnih tekstov. **Predmetno specifične kompetenc**e: • Izpopolnjevanje kompetenc v ustnem in pisnem izražanju; • Širjenje besednega zaklada in gradnja strokovnega besedišča; • Ozaveščanje o aktualnih perečih temah s področja stroke (trajnostnost, recikliranje itd.); • Razvijanje bralnih spretnosti.	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; • Raising awareness of current hot topics from the field of textiles (sustainability, recycling etc.); • Getting familiar with reading strategies to improve reading skills.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Seznanitev s osnovnim strokovnim besediščem z določenih področij načrtovanja tekstilij in oblačil; • Poglobljeno znanje posameznih slovničnih struktur; • Povzemanje/parafraziranje; • Pisanje povzetkov, sestavkov in projektnih poročil; • Pisne in ustne komunikacijske spretnosti; • Predstavitve v angleščini; • Poslovna komunikacija.	**Knowledge and understanding**: • Acquiring basic terminology from certain fields of textile and clothing planning; • 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:	**Learning and teaching methods:**
Predavanja, vaje, samostojno delo, delo v parih/skupinah. Uporaba spletne učilnice in IKT metod poučevanja. Medpredmetno povezovanje z drugim predmetom pri izdelavi seminarske naloge in predstavitvi le-te. Delo poteka na fakulteti ali preko spletne platforme.	Lectures, practical work, individual work, work in pairs/groups. Using online classroom and ICT teaching methods. Cross-curricular cooperation with another course at preparation and presentation of the seminar paper. Work takes place live or online via an online platform.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Način (pisni izpit, ustno preverjanje, naloge, projekt). Ocenjevalna lestvica: 6–10 pozitivno, 5 negativno. Končna ocena je sestavljena iz:		Type (written and oral examination, assignments, project). Grading scale: 6–10 pass, 5 fail. The final grade consists of :
zadolžitve tekom semestra	50,00 %	various assignments during the semester
izpit	50,00 %	the exam

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

- LUŠTEK PRESKAR, Barbara. English for specific purposes. [Graphic arts]. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2020. 160 str., ilustr. ISBN 978-961-6900-27-0. [COBISS.SI-ID 28249603]
- LUŠTEK PRESKAR, Barbara. English for specific purposes. Textile engineering. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2011. 128 str., ilustr. ISBN 978-961-6045-95-7. [COBISS.SI-ID 257973760]
- LUŠTEK PRESKAR, Barbara, VRBINC, Marjeta. Patient information leaflet as genre in English and Slovenian : contrastive analysis. V: CIGAN, Vesna (ur.), KRAKIĆ, Ana-Marija (ur.), OMRČEN, Darija (ur.). Od teorije do prakse u jeziku struke : zbornik radova = From theory to practice in language for specific purposes : conference proceedings = Von der Theorie zur Praxis in der Fachsprache : Sammelband. Zagreb: Udruga nastavnika jezika na visokošolskim ustanovama: = Association of LSP Teachers at Higher Education Institutions. 2019, str. 144-157, ilustr. Od teorije do prakse u jeziku struke (Zbornik radova). ISSN 1849-9279. [COBISS.SI-ID 17231107]
- STANKOVIĆ ELESINI, Urška, QUALIZZA, Nataša Pavla, HRKAČ, Tanja, ABSEC, Andreja, LUŠTEK PRESKAR, Barbara, JEDRINOVIĆ, Sanja, URBAS, Raša. Analiza uporabnosti in namembnosti večpredmetnega zvezka pri pouku v prvem razredu osnovne šole. Sodobna pedagogika. okt. 2021, letn. 72(138), št. 3, str. 46-64, ilustr. ISSN 0038-0474. https://www.sodobna-pedagogika.net/clanki/03-2021_analiza-uporabnosti-in-namembnosti-vecpredmetnega-zvezka-pri-pouku-v-prvem-razredu-osnovne-sole/. [COBISS.SI-ID 83967747]
- STANKOVIĆ ELESINI, Urška, LUŠTEK PRESKAR, Barbara. Posodobitev visokošolskega predmeta Inovacijski management = Higher education course Innovation management update. V: LIPOVEC, Alenka (ur.). Vloga predmetnih didaktik za kompetence prihodnosti : zbornik povzetkov. 1. izd. Maribor: Univerzitetna založba Univerze, 2019. Str. 283-284. ISBN 978-961-286-298-5. http://press.um.si/index.php/ump/catalog/view/433/436/706-2. [COBISS.SI-ID 3654000]

ENTREPRENEURSHIP

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068705
Koda učne enote na članici/UL Member course code:	10246

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

Nosilec predmeta/Lecturer:	Blaž Zupan
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:**
Študent oz. kandidat mora imeti predmet opredeljen kot študijsko obveznost. Pogoj za pristop k pisnemu in/ali ustnemu izpitu predmeta so 70 % prisotnost pri predavanjih, 100 % prisotnost pri vajah in 90 % prisotnost pri seminarjih in drugih oblikah dela. K pisnemu in/ali ustnemu izpitu predmeta lahko pristopijo študentje šele ko imajo pozitivno ocenjene vaje in seminar in izpolnjeno predpisano prisotnost pri vseh sklopih predmeta.	The course must be assigned to the student. The condition for taking the written and/or oral exam of the course is 70% attendance at lectures, 100% attendance at exercises and 90% attendance at seminars and other forms of work. Students can take the written and/or oral exam of the course only after they have received a positive assessment of the exercises and the seminar and have met the required attendance for all sections of the course.

Vsebina:	**Content (Syllabus outline):**
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;	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;

• 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.	• Basics of accounting and financing; • 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.

Temeljna literatura in viri/Readings:

- Antončič in ostali (2022): Podjetništvo – glavi dejavnik razvoja. Dostopno na: http://maksi2.ef.uni-lj.si/zaloznistvoslike/499/Podjetni%C5%A1tvo.pdf
- Muraya, Ash (2014): Delaj vitko – Od načrta A do načrta, ki deluje. Pasadena. Dostopno na: https://www.leanslovenia.com/delajvitko

Dodatna aktualna gradiva, objavljena na spletni strani predmeta./Additional current materials are published on the course website.

Cilji in kompetence:	**Objectives and competences:**
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.	**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:	**Intended learning outcomes:**
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, ki ga lahko replicira v profesionalnem in osebnem življenju; • Prepoznavanje podjetniških priložnosti, analiza podatkov in informacij za sprejemanje poslovnih odločitev, izdelava prototipov, antropološke in	**Knowledge and comprehension:** student 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; • 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; • Identification of business opportunities, analysis of data and information for business decision-making, prototyping, anthropological and

etnografske metode spremljanja potrošnikov, izpeljava rešitve problema; • Dokumentacija procesa z multimedijskimi metodami, samostojna priprava finančnih in poslovnih analiz.	ethnographic methods of customer analysis, and the implementation of a solution to a specific problem; • Documentation of the process using multimedia and the independent preparation of financial and business analyses (marketing, sales, etc.).

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja s pomočjo različnih AV sredstev; • Delo na konkretnem projektu, aktualnem problemu; • Predstavitve sprotnega dela, poročilo in komentarji s strani mentorjev in študentov; • Uporaba multimedijske tehnologije za spremljanje napredka, Internet, video; • Aktivno mentorstvo s strani pedagogov, asistentov, praktikov - podjetnikov; • Terensko delo – analiza trga, testiranje prototipov, uporaba rešitve problema, praktične vaje d.school metodologije. • Vaje se izvajajo v učilnici ali preko spleta s pomočjo ustrezne programske opreme (ZOOM; Teams, ipd).	• Lectures using audio-visual technology. • Work on a specific project in the form of a real business or social problem. • Ongoing work will be presented regularly, with feedback given by mentors and students. • The use of multimedia (Internet, video, etc.) to monitor progress. • Active mentoring will be provided by teachers, assistants, practitioners-entrepreneurs. • Fieldwork: market analysis, prototype testing, application of a solution to a problem, and practical exercises using the design thinking methodology. • Tutorials are conducted in classrom or via ZOOM, Teams, etc.

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

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. DEBARILEV, Stojan, JANESKA-ILIEV, Aleksandra, STRIPEIKIS, Osvaldas, ZUPAN, Blaž. What can education bring to entrepreneurship? : formal versus non-formal education. Journal of small business management. 2022, vol. 60, iss. 1, str. 219-252.
2. PUSTOVRH, Aleš, JAKLIČ, Marko, BOLE, Domen, ZUPAN, Blaž. How to create a successful regional startup ecosystem : a policy-making analysis. Lex localis : revija za lokalno samoupravo. [Tiskana izd.]. Jul. 2019, vol. 17, iss. 3, str. 749-770, ilustr.
3. ZUPAN, Blaž, CANKAR, Franc, SETNIKAR-CANKAR, Stanka. The development of an entrepreneurial mindset in primary education. European journal of education. [Print ed.]. Sep. 2018, vol. 53, iss. 3, str. 427-439.
4. 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.
5. 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.
6. 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.

7. 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].
8. 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].
9. 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].

FIBRES

Predmet:	Vlakna
Course title:	Fibres
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	Celoletni	obvezni

Univerzitetna koda predmeta/University course code:	0068733
Koda učne enote na članici/UL Member course code:	11036

Predavanja /Lectures	Seminar /Seminar	Vaje /Tutorials	Klinične vaje /Clinical tutorials	Druge oblike študija /Other forms of study	Samostojno delo /Individual student work	ECTS
75	15	30	0	0	120	8

Nosilec predmeta/Lecturer:	Tatjana Rijavec
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 letnik študija.	Enrolment into study year.

Vsebina:	Content (Syllabus outline):
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, poliolefinska, poliakrilonitrilna, modakrilna in elastomerna); • Modifikacije vlaken (profilirana in votla vlakna, dvokomponentna, mikrovlakna, nanovlakna). **Vaje**: • Razpoznavanje vlaken; • Oblikovanje vlaken iz taline (konstitutivna enačba, masni pretok, sile in nestabilnosti v	**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, acetate, polyester, polyamide, polyolefin, polyacrylonitrile, modacrylic and elastomeric); • The modification of a fibre's properties (profiled, hollow fibres, bicomponents, microfibres, nanofibres). **Tutorial**: • The identification of fibres: longitudinal appearance, chemical composition;

predilni liniji) in študij tvorbe strukture vlaken s spremljanjem lastnosti neraztezanih, raztezanih in fiksiranih vlaken; • Merjenje tališča, orientac:ije, kristaliničnosti in gostote vlaken.	• 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; • The melting temperature, orientation, crystallinity and density of fibres.

Temeljna literatura in viri/Readings:

1. RIJAVEC, Tatjana. Tekstilne surovine, Osnove. Ponatis. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2014;
2. BUKOŠEK, Vili, DEMŠAR, Andrej. Vlakna : navodila k vajam 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.;
3. 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:	**Objectives and competences:**
• 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.	• 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:	**Intended learning outcomes:**
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.	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:	Learning and teaching methods:
Predavanja.	Lectures.

Načini ocenjevanja:	Delež/Weight	Assessment:
Izpit	80,00 %	Exam
Seminar (pisni del in predstavitev)	20,00 %	Seminar work (written part and presented)

Ocenjevalna lestvica:	Grading system:
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

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. CAFUTA, Danijela, ABU-ROUS, Mohammad, JARY, Susanne, SCHEFFELMEIER, Miriam, RIJAVEC, Tatjana. Suitability of lyocell fiber for pillow fillings. *Textile research journal*. 2019, vol. 89, no. 18, str. 3722-3743, ilustr. ISSN 0040-5175. https://journals.sagepub.com/doi/full/10.1177/0040517518819844, DOI: 10.1177/0040517518819844.
3. RIJAVEC, Tatjana, KLJAJIĆ, Anela, JAKOMIN, Sabina. Impact of aspiration air pressure in the spinning shaft on the formation of hollow polyamide 6 fibres. *Vlákna a textil*. 2018, vol. 25, 2, str. 93-96. ISSN 1335-0617.

FINISHING

Predmet:	Apretura
Course title:	Finishing
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068749
Koda učne enote na članici/UL Member course code:	10025

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

Nosilec predmeta/Lecturer:	Barbara Simončič
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:**
• 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.	• 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:	**Content (Syllabus outline):**
Postopki kemijske apreture: • Vrhunska, vodo in oljeodbojna, soil-release, porometriks izdelki, trdilna, mehčalna, antistatična, protimikrobna, ognjevarna, super-wash. • Pri posameznem postopku apreture se obravnava namen apreture, učinki na blagu, predstavijo se strukture apreturnih sredstev, aditivov, katalizatorjev, mehanizmi vezanja sredstev na vlakna, vpliv strukture apreturnega sredstva na lastnosti oplemenitenih vlaken, postopki	**Chemical finishing processes**: • Easy-care, water and oil repellent, soil-release, porometric materials, hardening, softening, antistatic, antimicrobial, UV protective, flame retardant, super-wash. • 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

aplikacije in njihove faze, pogoji potrebni za nanos. • Predstavijo se načini in postopki vrednotenja kakovosti apreture v skladu z veljavnimi oziroma predpisanimi standardi. • Obravnava se ekološka sprejemljivost postopkov apreture in kemijskih apreturnih sredstev. **Postopki mehanske apreture**: • Kompresijsko krčenje, sanfor plus postopek, postopki za urejanje leska (kalandriranje, stiskanje, finish dekatura), fiksiranje volne (krabanje, mokro dekatiranje), polstenje in valjanje, urejanje površine (kosmatenje, brušenje, dviganje velurja). • Pri posameznem postopku se obravnava namen in učinek apreture, princip obdelave, strojna oprema, dejavniki, ki vplivajo na učinek apreture. **Laboratorijske vaje**: • Laboratorijska izvedba različnih postopkov apretiranja tekstilnih substratov. **Seminarsko delo**: • Načrtovanje postopka apreture tekstilije glede na zahtevane uporabne lastnosti.	discussed; the application procedures and their phases as well as the required application conditions are investigated. • The quality assessment methods and procedures of the finishing are presented in accordance with the applicable and prescribed standards. • The ecological acceptability of the finishing processes and the chemical finishing agents are discussed. **Mechanical finishing processes**: • 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). • 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. **Laboratory work:** • Laboratory performance of various finishing processes of textile substrates. **Seminar work:** • Planning of the textile finishing process regarding the required functional properties.

Temeljna literatura in viri/Readings:

1. BERAVS, F. Tekstilni procesi : tiskanje in apretiranje tekstilij. Ljubljana : NTF, Oddelek za tekstilstvo, 200
2. Handbook of Fiber Science and Technology. Vol. II, Chemical Processing of Fibers and Fabrics, Functional Finishes, Part A. Ed. by M. Lewin in B. Sello. New York : Marcel Dekker, 1984.
3. Handbook of Fibre Science and Technology: Vol. II, Chemical Processing of Fibres and Fabrics, Functional Finishes, Part B. Ed. By M. Lewin in B. Sello. New York : Marcel Dekker, 1984.
4. SCHINDLER, W.D., HAUSER, P.J. Chemical finishing of textiles. Cambridge : Woodhead Publishing Limited, 2004.
5. Colorants and Auxiliaries. Vol. 2, Auxiliaries. Ed. by J. Shore. Manchester : SDC, 1990;
6. Textile Finishing. Ed. by D. Heywood. Bradford : SDC, 2003;
7. CARTY, P., in BYRNE, M. S. The Chemical and Mechanical Finishing of Textile Materials. 2nd ed. Newcastle : UNN Commercial Enterprises, 1987;
8. 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:	**Objectives and competences:**
Pri predmetu Apretura 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. **Predmetno specifične kompetence**: • Poznavanje in izvajanje konvencionalnih, sodobnih in specialnih postopkov kemične in mehanske dodelave tekstilij;	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. **Subject-specific competences:** • Knowledge and implementation of conventional, contemporary and special processes of chemical and mechanical finishing of textiles;

• Sposobnost uporabe teoretičnih znanj s področja plemenitenja pri razumevanju vpliva strukture apreturnega sredstva na lastnosti modificiranih vlaken; • Sposobnost povezovanja znanj s področij konstrukcijskih, mehanskih, fizikalnih in kemijskih lastnosti tekstilij ter postopki apretiranja, kar je pogoj za kakovostno izvedbo modifikacije površin vlaken; • Sposobnost strokovne izbire sredstev in načinov apretiranja glede na želene uporabne lastnosti tekstilij; • Poznavanje in obvladovanje postopkov vrednotenja kakovosti apreture v skladu z veljavnimi oziroma predpisanimi standardi; • Sposobnost uporabe pridobljenega znanja za kritično presojo do tehnoloških potez pri preoblikovanju obstoječih kot tudi pri načrtovanju novih apreturnih postopkov; • Sposobnost hitrega odziva na nove informacije ter njihova uporaba pri razvoju tekstilnih izdelkov; • 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; • Sposobnost samostojnega znanstvenega raziskovalnega dela ter njegove smiselne in razumljive predstavitve; • Sposobnost strokovnega svetovanja pri uporabi in trženju apreturnih sredstev; • Sposobnost ekološkega razmišljanja pri vodenju in načrtovanju postopkov apretiranja kot tudi pri trženju apreturnih sredstev.	• 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; • 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; • Ability of the professional choose of the finishing agents and processes regarding the required functional properties of textiles; • Knowledge and management of the quality assessment procedures of the finishing according to the prescribed standards; • 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; • Ability to respond rapidly to new information and their use in the development of textile products; • 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; • Ability of independent scientific research work and its reasonable and comprehensible presentation; • Expertise in the field of the use and marketing of finishing agents; • Ecological thinking in management and planning of the finishing processes as well as in the marketing of finishing agents.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Študent pozna klasične, sodobne in specialne apreturne postopke. Zna jih načrtovati, razložiti posamezne faze postopka in jih samostojno izvesti. • Zna uporabiti najustreznejši postopek dela glede na zahtevane uporabne lastnosti tekstilij. • Razume vpliv nanosa kemijske apreture na spremembo uporabnih lastnosti tekstilij. • 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. • Pozna osnovne kemijske reakcije pri posameznih postopkih. Zna oceniti in interpretirati rezultate obdelav. **Uporaba**:	**Knowledge and understanding:** • 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. • He is able to use the most appropriate finishing procedure according to the required functional properties of textiles. • He understands the influence of the application of the chemical finishing process on the surface modification and functional properties of textiles. • 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 conditions. He knows their negative effects on the environment and human being and can minimize them.

• Zna uporabiti ustrezni klasični ali sodobni postopek apreture, ga samostojno izvesti in ovrednotiti kakovost izvedbe postopka. • Se zna hitro odzvati na nove informacije ter jih uporabiti pri postopkih plemenitenja; • Zna strokovno ravnati s tekstilnimi pomožnimi sredstvi ter kemikalijami.	• 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. **Application:** • He is able to choose an appropriate classical or contemporary finishing procedure, to perform it independently and evaluate the quality of the applied procedure. • He can quickly respond to new information and apply them in the finishing processes. • He is capable of the professional handling with the auxiliaries and chemicals.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminarsko delo, laboratorijske vaje, ekskurzije.	Lectures, seminar work, laboratory exercises, excursions.

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

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ŠTULAR, Danaja, SAVIO, Elisa, SIMONČIČ, Barbara, ŠOBAK, Matic, JERMAN, Ivan, POLJANŠEK, Ida, FERRI, Ada, TOMŠIČ, Brigita. Multifunctional antibacterial and ultraviolet protective cotton cellulose developed by in situ biosynthesis of silver nanoparticles into a polysiloxane matrix mediated by sumac leaf extract. *Applied Surface Science,* 2021, vol. 563, str. 1-12. DOI: 10.1016/j.apsusc.2021.150361. [COBISS.SI-ID 67347971].
2. RASHID, Mohammad Mamunur, SIMONČIČ, Barbara, TOMŠIČ, Brigita. Recent advances in TiO2-functionalized textile surfaces. *Surfaces and interfaces*. 2021, vol. 22, str. 1-33. https://www.sciencedirect.com/science/article/pii/S2468023020308828. [COBISS.SI-ID 45430275].
3. TOMŠIČ, Brigita, MARKOVIĆ, Darka, JANKOVIĆ, Vukašin, SIMONČIČ, Barbara, NIKODINOVIĆ-RUNIĆ, Jasmina, ILIC-TOMIC, Tatjana, RADETIĆ, Maja. Biodegradation of cellulose fibers functionalized with CuO/Cu2O nanoparticles in combination with polycarboxylic acids. *Cellulose*. 2022, vol. 29, iss. 1, str. 287–302. DOI: 10.1007/s10570-021-04296-6. [COBISS.SI-ID 86095363].
4. GLAŽAR, Dominika, JERMAN, Ivan, TOMŠIČ, Brigita, CHOUHAN, Raghuraj S., SIMONČIČ, Barbara. Emerging and promising multifunctional nanomaterial for textile application based on graphitic carbon nitride heterostructure nanocomposites. *Nanomaterials*, 2023, vol. 13, iss. 3, article 408, str. 1-26. DOI: 10.3390/nano13030408. [COBISS.SI-ID 138579459].
5. RASHID, Mohammad Mamunur, TOMŠIČ, Brigita, SIMONČIČ, Barbara, JERMAN, Ivan, ŠTULAR, Danaja, ZORC, Matija, ČELAN KOROŠIN, Nataša. In situ tailoring of Ag-doped-TiO2/TPMP/cotton nanocomposite with UV-protective, self-sterilizing and flame-retardant performance for advanced technical textiles. *Polymer degradation and stability,* 2023, vol. 216, 110504, str. 1-11. DOI: *10.1016/j.polymdegradstab.2023.110504*. [COBISS.SI-ID *161627395*].

INFORMATION SOURCES AND METHODOLOGY OF THESIS WORK

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068748
Koda učne enote na članici/UL Member course code:	11294

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

Nosilec predmeta/Lecturer:	Danica Dolničar
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:**
• Računalniška pismenost, razvite spretnosti za uporabo informacijsko-komunikacijskih tehnologij. • Poznavanje terminologije študijskega področja v slovenskem in angleškem jeziku.	• Computer literacy, skills of using information and communication technologies. • Knowledge of the study field terminology in Slovenian and English language.

Vsebina:	**Content (Syllabus outline):**
• 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; • Priprava profilov za iskanje: postavljanje ključnih besed, krajšanje, maskiranje, Boolovi in posebni operatorji, vključevanje dodatnih iskalnih polj; • Retrospektivne poizvedbe. Iskanje z dodano vrednostjo za prepoznavanje in interpretacijo trendov;	• 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; • Bibliographic databases: structure, properties, examples from the field of study; • Preparation of search profiles: selection of keywords, truncation, masking, Boolean and special search operators, the inclusion of additional search fields; • Retrospective searches. Added value searches for the identification and interpretation of trends;

• Faktografske baze podatkov za področje stroke: tipi, uporaba, dostopnost; • Informacijski sistemi, združevalni iskalniki; • Osnove intelektualne lastnine: avtorske pravice, blagovne znamke, zaščiteni modeli, patenti – pregled, pomen, dostopnost informacij; • Informacijske metode za analizo in sintezo podatkov v znanje: metoda strukturiranja podatkov v drevesne in modularne sisteme, metoda prepoznavanja vzorcev, informacijska gostota; • Postavljanje in testiranje raziskovalnih hipotez. Obdelava raziskovalnih podatkov; • Metodološki pristopi za pripravo strokovnih in znanstvenih predstavitev;	• Factual database in the field of study: types, use, accessibility; Information systems, federated search engines; • Basics of intellectual property: copyrights, trademarks, registered designs, patents; • 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; • Setting up and testing of research hypotheses. Processing of research data; • Methodological approaches for the preparation of technical and scientific presentations.

Temeljna literatura in viri/Readings:

- Osnovna študijska gradiva so študentom vsako leto na voljo v spletni učilnici = Fundamental study materials for students are available each year in the online classroom.
- DAY, R.A and GASTER B. How to write and publish a scientific paper. 8th edition, Cambridge: Cambridge University press, 2019, 326 str.
- Merila in kazalci informacijske pismenosti v visokem šolstvu [prevod K.STOPAR et al.] Ljubljana : Zveza bibliotekarskih društev Slovenije, 2010, 23 str. Dostopno na: https://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/infolit_slovenian.pdf
- CHOWDHURY, G.G. Introduction to modern information retrieval. 3rd edition, London: Facet Publishing, 2010, 508 str.
- WATSON, R.T. Data management : Databases and organizations. 6th edition, Burlington: Prospect Press, 2016, 533 str.

Cilji in kompetence:	**Objectives and competences:**
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; • Uporaba osnovnih informacijskih metod za analizo in sintezo informacij v znanje; • Metodološko načrtovanje raziskave diplomskega dela; • Poznavanje zgradbe strokovnih in znanstvenih besedil, usposobljenost za pisanje besedil diplomskega dela;	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; • Application of basic information methods for analysis and synthesis of data into knowledge. • Methodological design of the diploma work research; • Knowing the structure of professional and scientific texts; ability to write texts for the diploma thesis;

• Urjenje v profesionalnem javnem nastopanju in razpravljanju na področju stroke.	• Training in professional public presentations and discussions in the field of study.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje: • Viri zanesljivih strokovnih in znanstvenih informacij ter pravila za citiranje po standardu ISO690; • Izbrane bibliografske in faktografske baze podatkov za področje študija, informacijski sistemi in združevalni iskalniki; • Iskalna logika in operatorji za sestavljanje iskalnih profilov v specializiranih podatkovnih bazah in/ali spletnih iskalnikih; • Kategorije in možnosti za zaščito pravic intelektualne lastnine; • Značilna zgradba diplomskega dela, znanstvenega in strokovnega članka, patenta; • Osnovne informacijske metode za urejanje podatkov v sisteme; • Metodološki pristopi za načrtovanje diplomskega dela, postavljanje delovnih hipotez, obdelavo rezultatov, izdelavo pisnih izdelkov in ustnih predstavitev na področju študijskega programa. **Razumevanje**: • Pomen informacijske pismenosti v sodobni družbi ter merila za njeno vrednotenje; • Vloga, pomen, pravni in etični vidiki zaščite intelektualne lastnine; • Pomen metodoloških pristopov za analizo in sintezo neurejenih informacij v znanje; • Potek cikla raziskovalnega dela.	**Knowledge**: • Reliable sources of technical and scientific information, and citation rules according to the standard ISO690; • Selected bibliographic and factual databases in the field of study, information systems and federated search engines; • Search logic and operators for designing search queries for specialized databases and /or web search engines; • Categories and options for the protection of intellectual property rights; • Characteristic structure of the diploma thesis, scientific and technical papers, patents; • Basic information methods for the synthesis of data into systems; • 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. Understanding: • The importance of information literacy in a contemporary society; standards for its evaluation; • The role, importance, legal and ethical aspects of intellectual property rights; • The importance of methodological approaches for analysis and synthesis of scattered information into knowledge; • Cycle of the research process.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja so podprta z računalniškimi predstavitvami in interaktivnim sodelovanjem študentov. • Seminarsko projektno delo in razprave (samostojno delo študenta v interakciji z učiteljem in s skupino) ter zaključna predstavitev rezultatov na študentski konferenci.	1. Lectures are supported by computer presentations and students' interactive participation. 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.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	60,00 %	Written examination
Seminar-projekt	40,00 %	Seminar-project

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. DOLNIČAR, Danica, BOH PODGORNIK, Bojana. Factors influencing information literacy of university students. V: WALLER, Lee (ur.). *Higher Education - Reflections From the Field [Working Title] : [Vol. 2]*. 1st ed. London: IntechOpen, cop. 2023. Str. 1-16, ilustr. DOI: 10.5772/intechopen.109436. [COBISS.SI-ID 156185859]
2. DOLNIČAR, Danica, BOH PODGORNIK, Bojana, BARTOL, Tomaž, ŠORGO, Andrej. Added value of secondary school education toward development of information literacy of adolescents. Library & Information Science Research : an international journal. [Print ed.]. 2020, vol. 42, no. 2, str. 1-18. ISSN 0740-8188. DOI: 10.1016/j.lisr.2020.101016. [COBISS.SI-ID 16455171]
3. DOLNIČAR, Danica, BOH PODGORNIK, Bojana. Undergraduate students' information literacy : challenges and opportunities. V: NATA, Roberta V. (ur.). Progress in education. New York: Nova Science Publishers, 2020. Str. 153-185. Progress in education, 63. ISBN 978-1-53617-845-6. ISSN 1535-4806. [COBISS.SI-ID 17201667]
4. DOLNIČAR, Danica, BOH PODGORNIK, Bojana, BARTOL, Tomaž, ŠPERNJAK, Andreja, ŠORGO, Andrej. Predlog meril in kazalcev informacijske pismenosti za srednje šole = Proposed information literacy standards and performance indicators for secondary education. Knjižnica : revija za področje bibliotekarstva in informacijske znanosti. [Tiskana izd.]. 2018, 62, [št.] 1/2, str. 69-91. ISSN 0023-2424. [COBISS.SI-ID 1412446]
5. 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. [Online ed.]. 2017, vol. 43, iss. 5, str. 601-614. ISSN 1741-6485. DOI: 10.1177/0165551516655084. [COBISS.SI-ID 127062]
6. 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. [Print ed.]. 2017, vol. 48, no. 3, str. 749-767. [COBISS.SI-ID 1261406]
7. 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.[COBISS.SI-ID 1585756]

INTERDISCIPLINARITY OF TEXTILES

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni

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

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

Nosilec predmeta/Lecturer:	Brigita Tomšič, Tatjana Rijavec
Vrsta predmeta/Course type:	Obvezni/Compulsory

Jeziki/Languages:	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:

1. Functional and technical textiles. Uredili S. Maity, K. Singha in P. Pandit. Cambridge : Woodhead Publishing ; [Amsterdam] : Elsevier ; [Manchester] : The Textile Institute, 2023.
2. 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 [15.9.2014].
3. 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:	**Objectives and competences:**
Cilji: • Razširitev poznavanja uporabe tekstilij izven področja oblačilne industrije; • Opredelitev pomena in vloge tekstilij na različnih gospodarskih področjih; • Prepoznavanje uporabnosti tekstilnega strokovnega znanja v drugih gospodarskih panogah. **Kompetence**: • Sposobnost razvrstitve tekstilij po področjih uporabe; • Poznavanje ekonomskih značilnosti in posebnosti tekstilne panoge v Evropi in svetu; • Sposobnost razmišljanja in povezovanja tekstilnega strokovnega znanja z namenom pospeševanja interdisciplinarnega prenosa znanj v druge stroke.	**Aims**: • Expanding the knowledge of the use of textiles beyond the scope of the clothing industry; • Defining the meaning and the role of textiles in various economic sectors; • Recognising of the usefulness of textile expertise in other industries. **Competencies**: • The capability of the classification of textiles by application areas; • The knowledge of the economic characteristics and peculiarities of the textile industry in Europe and the world; • The ability to think about and integrate textile expertise with the aim of promoting interdisciplinary transfer of knowledge to other disciplines.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Diplomant pridobi: • Celosten vpogled v tekstilno stroko in pozna vpetost oziroma prepletenost stroke z drugimi gospodarskimi področji; • Sposobnost širšega razmišljanja o različnih možnostih uporabe tekstilnih materialov za nadaljnjo raziskovalno in poklicno pot.	The graduate obtains: • Comprehensive insight into the textile industry and knowledge about the involvement or the entanglement of the profession with other economic sectors; • An ability to think more broadly about the various possibilities of the application of textiles to other research and careers.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja.	Lectures.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	60,00 %	Written exam
Seminarska naloga	40,00 %	Seminar work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

Tatjana Rijavec:

1. RIJAVEC, Tatjana. Barvno aktivne tekstilije - kromizem ali reverzibilno spreminjanje barve = Colour active textiles - chromism or reversible colour changing. *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2005, letn. 48, št. 1/3, str. 7-20. ISSN 0351-3386.
2. RIJAVEC, Tatjana, BUKOŠEK, Vili. Nova vlakna za 21. stoletje = New fibres for 21st century. *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2004, vol. 47, no. 1/2, str. 13-25. ISSN 0351-3386.
3. RIJAVEC, Tatjana. Tekstilne surovine in moda v dvajsetem stoletju : od oblačilne revščine do oblačilne blaginje. V: PUŠNIK, Maruša (ur.), FAJT, Elena (ur.). *Moda in kultura oblačenja*. 1. izd. Maribor: Aristej, 2014. Str. 69-88, ilustr. ISBN 978-961-220-097-8.

Brigita Tomšič:

1. ŠTULAR, D., SIMONČIČ, B., TOMŠIČ, B. Stimuli-responsive hydrogels for textile functionalisation : a review. Tekstilec, 2017, vol. 60, no. 2, str. 76-96.
2. VASILJEVIĆ, J., TOMŠIČ, B., JERMAN, I., SIMONČIČ, B. Organofunctional trialkoxysilane sol-gel precursors for chemical modification of textile fibres. Tekstilec, 2017, vol. 60, no. 3, str. 198-213;
3. RASHID, M. M., SIMONČIČ, B., TOMŠIČ, B. Recent advances in TiO2-functionalized textile surfaces. *Surfaces and interfaces,* 2021, vol. 22, str. 1-33;
4. ŠTULAR, D., KRUSE, M., ŽUPUNSKI, V., KREINEST, L., MEDVED, J., GRIES, T., BLAESER, A., JERMAN, I., SIMONČIČ, B., TOMŠIČ, B.. "Smart" stimuli-responsive polylactic acid-hydrogel fibers produced via electrospinning. *Fibers and polymers*. 2019, vol. 20, no. 9, str. 1857-1868;
5. TOMŠIČ, B., MARKOVIĆ, D., JANKOVIĆ, V., SIMONČIČ, B., NIKODINOVIĆ-RUNIĆ, J., ILIC-TOMIC, T., RADETIĆ, M. Biodegradation of cellulose fibers functionalized with CuO/Cu2O nanoparticles in combination with polycarboxylic acids. *Cellulose.* 2022, vol. 29, iss. 1, str. 287–302.

INTRODUCTION TO TECHNICAL TEXTILES AND COMPOSITES

Predmet:	Uvod v tehnične tekstilije in kompozite
Course title:	Introduction to technical textiles and composites
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code: 0643007

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

Nosilec predmeta/Lecturer: Dunja Šajn Gorjanc, Tatjana Rijavec

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 letnik študija.	Enrolment into study year.

Vsebina:	**Content (Syllabus outline):**
Uvod v tehnične tekstilije • Opredelitev tehničnih tekstilij. • Delitev in surovinska sestava tehničnih tekstilij. • Laminati in premazene tekstilije. • Plastene tekstilije. • Tekstilije v notranji opremi, transportnih sredstvih, v gradbeništvu, v nizkih gradnjah, kmetijstvu, za medicinske in higienske namene, za embalažo, zaščito okolja, športne rekvizite. Varovalna oblačila za mehansko, kemično, biološko zaščito, pred elektrostatičnim nabojem, sevanji, mrazom, toploto, ognjem, idr. Recikliranje tehničnih tekstilij. **Uvod v kompozite** • Opredelitev kompozitov • Polimerne matrice • Ojačitev matrice • Zgradba kompozitov • Postopki izdelave kompozitov	**Introduction to Technical textiles** • Definition of technical textiles. • Division and raw material composition. • Laminates and coated textiles. • Multilayer textiles. • Textiles in interior design, in transport, construction, civil engineering, agriculture, medical and hygienic purposes, for packaging, environmental protection, sports equipment. Protective clothing for mechanical, chemical, biological protection against electrostatic charge, radiation, cold, heat, fire, etc. Recycling of technical textiles. **Introduction to composites** • Definition of composites • Polymer matrices • Matrix reinforcement • Composite structure • Composite manufacturing processes

• Lastnosti kompozitov	• Properties of composites

Temeljna literatura in viri/Readings:

- *Handbook of technical textiles*. Ur. A.R. Harrocks in S.C. Anand. Cambridge: Woodhead Publishing, Boca Raton e tal.: The Textile Institute, CRC Press. 2015.
- *Textile protection*. Ur. R.A. Scott. Cambridge: Woodhead Publishing, Boca Raton e tal.: The Textile Institute, CRC Press. 2005.
- *Textiles for cold weather apparel.* Ur. J. Williams. Cambridge: Woodhead Publishing, Boca Raton e tal.: The Textile Institute, CRC Press. 2009.
- *Design and manufacturing of textile composites*. Ur. A.C. Long. Cambridge: Woodhead Publishing, Boca Raton e tal.: The Textile Institute, CRC Press. 2005.
- ŠAJN GORJANC, Dunja. *Tehnične tekstilije in kompoziti : študijsko gradivo : E-predavanja : E-vaje*. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, Katedra za tekstilno in oblačilno inženirstvo, 2020. 1 zv. (loč. pag.), ilustr. https://www.ntf.uni-lj.si/toi/employee/dunja-sajn/tehnicne-tekstilije_studijsko-gradivo_2020/.
- ŠAJN GORJANC, Dunja. *Tehnične tekstilije : študijsko gradivo*. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, Katedra za tekstilno in oblačilno inženirstvo, [2019]. https://www.ntf.uni-lj.si/toi/employee/dunja-sajn/tehnicne_tekstilije/.
- WALTER, F. *Coated and laminated textiles.* Cambridge: Woodhead Publishing Limited, 2002.

Cilji in kompetence:	**Objectives and competences:**
Cilji: • Študent spozna področja uporabe in tehnološke procese izdelave tehničnih tekstilij in s tekstilijami ojačenih kompozitov in laminiranih, premazanih, večplastnih tekstilij, njihovo konstrukcijo in lastnosti. Spozna tehnološke postopke izdelave in možnosti uporabe. **Kompetence:** • pozna prednosti in omejitve uporabe tekstilij na tehničnih področjih • pozna osnovne postopke izdelave kompozitov • zna izbrati tehnične tekstilije, primernih lastnosti in jih uporabiti samostojno ali v kompozitu.	**Objectives:** • Students learn about the application fields and production processes of technical textiles and textiles reinforced composites and laminated, coated and multilayer textiles, their structure and properties. They learn about technological manufacturing processes and the application options. **Competences:** • knowledge of the advantages and limitations of the use of textiles in technical fields • knowledge of the basic processes of manufacture of composites • is able to select technical textiles with suitable properties and use technical textiles alone or in composite.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študenti znajo izdelati polimerni kompozit in mu določiti lastnosti. Znajo ustrezno izbrati tehnične tekstilije (laminate, premazane tekstilije, večplastne tekstilije) in ustrezno ojačitveno komponento in predvideti vpliv na uporabne lastnosti kompozitov in tehničnih tekstilij. Študenti razumejo laminirane strukture (strukturni kompoziti) in vplive različnih tehnoloških faz na kakovost tekstilnih kompozitov in tehničnih tekstilij.	Students know how to make a polymer composite and determine it properties. They know how to choose the right technical textile (laminated, coated and multilayer textiles) and reinforcement component and predict their impact on useful properties. Students understand laminated structures (structural composites) and the effects of different technological stages on the quality of textile composites and technical textiles.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Metode poučevanja: • predavanja • seminar	Teaching methods: • lectures • seminar

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

Pisni/ustni izpit.	50,00 %	Written/oral exam.
Izdelava in predstavitev seminarja.	30,00 %	Preparation and presentation of the seminar work.
Vaje.	20,00 %	Experimental.

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

Tatjana Rijavec

- RIJAVEC, T. Oil retention capacity of textile fibres. V: ADOLPHE, Dominique C. (ur.). 11th World Textile Conference AUTEX 2011, 8-10 June 2011, Mulhouse, France. *Book of proceedings : 150 years of research and innovation in textile science*. Mulhouse: Ecole Nationale Supérieure d'Ingénieurs Sud-Alsace, 2011, str. 562–565
- RIJAVEC, T. Visokozmogljiva vlakna na trgu. V: *Tehnične tekstilije v gumarski industriji : Strokovno izobraževanje v Savatech, d.o.o., 19. januar 2011– 9. februar 2011*. Ur. T. Rijavec in D. Gregor Svetec. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2011.
- RIJAVEC, T. Kapok v tehničnih tekstilijah. *Tekstilec*, 2008, **51**(10/12), 319–331.
- RIJAVEC, T, BUKOŠEK, V. Dostignuća u razvoju vlakana za tehničke namjene. *Tekstil*, 2004, **53**(11), 562–575.
- RIJAVEC, T. Novosti i perspektive konvencionalnih vlakana i visokoučinkovitih (HPF) vlakana za tehničke namjene. *Tekstil*, 2004, **53**(12), 630–641.

Dunja Šajn Gorjanc

- ŠAJN GORJANC, Dunja. Functional properties of nonwovens as an insulating layer for protective gloves. *Polymers*. 2023, vol. 15, iss. 3, str. 1-15.
- ČEPIČ, Gracija, ŠAJN GORJANC, Dunja. Influence of the web formation of a basic layer of medical textiles on their functionality. *Polymers*. 2022, vol. 14, iss. 11, str. 1-23
- BATIČ, Eva, ŠAJN GORJANC, Dunja. Characteristics of laminates for car seats. *AUTEX research journal*, ISSN 1470-9589. [Print ed.], 29 Sep 2020, vol. , no. , 14 str. https://content.sciendo.com/view/journals/aut/ahead-of-print/article-10.2478-aut-2020-0032/article-10.2478-aut-2020-0032.xml, doi: 10.2478/aut-2020-0032.
- BEZGOVŠEK, Špela, ŠAJN GORJANC, Dunja, PULKO, Boštjan, LENART, Stanislav. Influence of structural parameters of nonwoven geotextiles on separation and filtration in road construction. *AUTEX research journal*, ISSN 1470-9589. [Print ed.], Dec. 2020, vol. 20, no. 4, str. 449 - 460. https://www.degruyter.com/view/j/aut.ahead-of-print/aut-2019-0038/aut-2019-0038.xml?format=INT

KNITTED STRUCTURES

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068735
Koda učne enote na članici/UL Member course code:	10121

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

Nosilec predmeta/Lecturer:	Živa Zupin
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 letnik študija.	Enrolment into study year.

Vsebina:	**Content (Syllabus outline):**
• uvod v votkovne pletilske vezave; shema votkovnega pletenja; zančna 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; • enostavne votkovne vezave: 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 snutkovne pletilske vezave; shema snutkovnega pletenja; odprta in zaprta zanka; polaganje niti na igle, gibanje polagalnikov; • temeljne snutkovne vezave, sestavljene enosnutkovne vezave, večsnutkovne vezave; kombinacije temeljnih snutkovnih vezav; • uvod v zahtevnejše votkovne pletilske vezave, razlika med eksperimentalnim in industrijskim votkovnim pletenjem, proces načrtovanja zahtevnejših votkovnih pletiv in pletenin;	• introduction to weft knitted structures: weft knitting scheme, structural representation, front and back loops, tuck, float, point-paper design, technical notation and knitting yarn path; • computer programmes for the design and construction of weft knitted fabrics; • basic weft knitted structures: single weft knitted structures, single jacquard, single tuck structures, rib/double structures and double tuck structures; • introduction to warp knitted structures, warp knitting scheme, open and closed loop, yarn path and lapping movement; • basic warp knitted structures, combined warp knitted structures, multi warp knitted structures and combinations of basic warp knitted structures; • introduction to advanced weft knitted structures and difference between experimental and industrial weft knitting, advanced weft knitted structures planning process;

• zahtevnejše votkovne vezave: levo-leve, interlok, premikane, luknjičaste, reliefne in zložljive vezave, dvofonturni žakar; • uvod v zatevnejše snutkovne pletilske vezave; • zahtevnejše snutkovne vezave: sestavljene vezave, luknjičaste vezave in mreže, stezniške vezave, lasaste vezave, desno-desne vezave.	• advanced weft knitted structures: links-links, interlock, racked, ajour, textured and foldable structures and double jacquard; • introduction to advanced warp knitted structures; • advanced warp knitted structures, combined warp knitted structures, nets and mesh structures, pile structures and double warp knitted structures.

Temeljna literatura in viri/Readings:

- PAVKO-ČUDEN, A. Kompozicija pletenin 1 (skripta), NTF, Oddelek za tekstilstvo, Ljubljana 2008.
- PAVKO-ČUDEN, A. Kompozicija pletenin 2 (skripta), NTF, Oddelek za tekstilstvo, Ljubljana 2008.
- SPENCER, D.J. Knitting Technology: A Comprehensive Handbook and Practical Guide, Woodhead Publishing Series in Textiles, 3rd Edition, Cambridge, 2001.
- RAZ, S. Flat Knitting Technology, Universal Machinenfabrik, Westhausen 1993.
- RAZ, S. Flat knitting: The New Generation, Meisenbach, Bamberg 1991.
- WEBER, M.O, WEBER, K.P. Wirkerei und strickerei: Technologien, Bindungen, Produktionsbeispiele, DFV Mediengruppe, Frankfurt am Mein, 2014.
- TELLIER-LOUMAGNE, F. The art of knitting: inspirational stitches, textures and surfaces, Thames and Hudson, London, 2005.
- BROWN, C. Knitwear design, Laurence Knig Publishing, London, 2013.

Cilji in kompetence:	**Objectives and competences:**
Cilji: • Študenti se seznanijo s konstrukcijo in tehniko izdelave enostavnih in zahtevnejših pletenih struktur. • Spoznajo enostavne in zahtevnejše pletilske vezave, vpliv preje, konstrukcijskih parametrov pletiva in vezave na videz, lastnosti in namembnost pletiva. • Seznanijo se z računalniškim programom za oblikovanje pletiv. **Kompetence**: • Poznavanje in razumevanje enostavnih in zahtevnih pletilskih tehnik; • Poznavanje temeljnih in zahtevnejših pletilskih vezav; • Poznavanje temeljnih funkcij računalniških programov za oblikovanje in konstruiranje pletiv; • Sposobnost identifikacije temeljnih in zahtevnejših pletenih struktur; • Sposobnost povezovanja znanja z različnih področij (oblikovanje, moda, materiali, preskušanje tekstilij, kakovost); • Poznavanje strokovne terminologije s področja pletenja.	**Objectives:** • Students will learn the structure and manufacturing techniques of basic and advanced knitted structures. • They will learn basic and advanced knitted structures and the influence of yarn, construction and knitted structure on the appearance, properties and use of knitted fabrics. • Students will learn about a computer programme for knitted fabric design. **Competencies:** • Know and understand simple and advanced knitting techniques; • Know simple and advanced knitted structures; • Know basic functions of computer programmes for designing and constructing knitted structures; • Ability to recognise basic and advanced knitted structures; • Ability to merge knowledge from various fields (design, fashion, materials, textile testing, quality); • Knowledge of technical terminology in the field of knitting.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• Obvladovanje temeljnih pletilskih vezav; • Razumevanje različnih tehnik pletenja; • Poznavanje računalniških programov za oblikovanje in konstruiranje pletiv; • Poznavanje simbolnih/shematskih zapisov pletilskih vezav; • Poznavanje lastnosti pletiv v različnih vezavah;	• Mastering basic knitted structures; • Understand various knitting techniques; • Know computer programmes for the design and construction of knitted fabrics; • Know symbolic/schematic representation of knitted structures;

• Razumevanje vpliva različnih konstrukcijskih parametrov pletiv na doseganje različnih vizualnih efektov in otipa.	• Know the properties of knitted fabrics in different structures; • Understand the effects of different structural parameters of knitted fabrics to achieve different visual effects and handle.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, simbolno zapisovanje vezav, praktično delo: pletenje.	Lectures, structures' notation, practical work: knitting.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	60,00 %	Written exam
Predstavitev praktičnega dela	40,00 %	Presentation of practical work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ZUPIN, Živa, KNIFIC, Karmen, PAVKO-ČUDEN, Alenka. Comfort properties of functional double bed knitted fabric for firefighters underwear. Tekstil ve konfeksiyon dergisi : journal of textile and apparel. 2023, vol. 33, no. 3, str. 249-261. ISSN 1300-3356. https://dergipark.org.tr/en/download/article-file/2224036, DOI: 10.32710/tekstilvekonfeksiyon.1065942.
2. ZUPIN, Živa. Novosti na področju računalniškega oblikovanja tkanin, pletiv in pletenin na sejmih ITMA in Techtextil 2019 = Novelties in computer-aided design of woven and knitted fabrics and knittwear at Techtextil and ITMA 2019. Tekstilec : glasilo slovenskih tekstilcev, ISSN 0351-3386. [Tiskana izd.], 2019, vol. 62, priloga 2, str. SI 123-Sl 133.
3. ZUPIN, Živa, KOVAČIČ, Sara. Performance properties of double bed jacquard knitted fabrics for upholstery. V: KARDAŞLAR, Ahmet (ur.), MİKE, Faruk (ur.). Full text book : II. International Korkut Ata Scientific Researches Conference : October 7-8, 2023, Ankara, Turkey. II. International Korkut Ata Scientific Researches Conference, October 7-8, 2023, Ankara, Turkey. Ankara: IKSAD Publishing House, 2023. Str. 555-562, ilustr. ISBN 978-625-367-347-5. https://www.korkutataconference.org/_files/ugd/614b1f_16c34c13a6234f2782cbdff104c7aa9a.pdf.
4. ZUPIN, Živa, KNIFIC, Karmen, PAVKO-ČUDEN, Alenka. Comfort properties of functional double bed knitted fabric for firefighters underwear. V: PERRIN AKÇAKOCA KUMBASAR, Emriye (ur.). Book of proceedings. 15th International İzmir Textile & Apparel Symposium, IITAS 2021, October 26 - 27, 2021, İzmir-Turkey. Izmir: Ege University, Faculty of Engineering, Department of Textile Engineering, 2021. Str. 429-435, ilustr. ISBN 978-605-338-329-1. http://www.iitas2021.com/en/.
5. ZUPIN, Živa (avtor, vodja projekta), MOTNIKAR, Ana, ZOREC, Petja, ŽAGAR, Janja, KOGEJ-RUS, Sonja, GAJŠEK, Gašper, HRASTAR, Zala, MAVRIĆ, Zala, MIKLAVČIČ, Anita, PETROVČIČ, Elizabeta, REŠETIČ, Klara, SCHWARZBARTEL, Petra, TURK, Maruša, VIDMAR, Lara, VRHOVSKI, Iris. Raziskovanje zgodovine nogavičarstva ter oblikovanje sodobnih nogavic : končno poročilo o doseženih ciljih : štumfi : projektno delo z negospodarskim in neprofitnim sektorjem - študentski inovativni projekti za družbeno korist 2016-2020 za študijski leti 2018/2019 in 2019/2020. Ljubljana: Naravoslovnotehniška fakulteta: Slovenski etnografski muzej, 2020. 23 str., ilustr.

KNITTING

Predmet:	Pletenje
Course title:	Knitting
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068737
Koda učne enote na članici/UL Member course code:	10029

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

Nosilec predmeta/Lecturer:	Alenka Pavko Čuden
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 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.	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:	Content (Syllabus outline):
Predavanja: • Pomen in uporaba pletiv in pletenin v tekstilstvu in na ostalih področjih uporabe; • Principi in načini pletenja; pletilske tehnike in pletilniki; možnosti vzorčenja; • Vrste in lastnosti pletiv in pletenin glede na izdelavno tehnologijo; • Vrste in lastnosti pletiv glede na uporabnost izdelkov; • Geometrija strukture pletiv in pletenin; • Konstrukcijski parametri pletiv in njihova povezanost z lastnostmi pletiv/pletenin; • Posebnosti preskušanja in zagotavljanja kakovosti pletiv in pletenin; • Načrtovanje uporabnih lastnosti pletiv in pletenin; **Seminar**:	**Lectures**: • Significance and uses of knitwear and knitted fabrics in textile and other applications; • Principles and methods of knitting; knitting techniques and machines; possibilities of patterning; • Types and properties of knitted fabrics/knitwear in relation to manufacturing technology; • Types and properties of knitted fabrics/knitwear in relation to the usability of the products; • Geometry of knitted structure; • Construction parameters of knitted fabrics and their relationship with the properties of knitted fabrics/knitwear; • Specifics of testing and quality assurance of knitted fabrics/knitwear;

• Izračun parametrov pletiva po različnih modelih zanke in primerjava rezultatov; • Predstavitev izračuna materialnega in izdelavnega normativa za določeno pletivo/pletenino; • Analiza pletiva. **Vaje**: • Eksperimentalno določanje temeljnih parametrov zanke in pletiva; • Računsko določanje in vrednotenje temeljnih parametrov pletiva; • Projektiranje pletiv/pletenin ; • Eksperimentalno pletenje.	• Design of performance characteristics of knitted fabrics/knitwear; **Seminar**: • Calculation of knitting parameters based on different loop models and comparison of results; • Calculation of the material and manufacturing time for a defined knitted fabrics/knitwear; • Analysis of knitted structure. **Exercises**: • Experimental determination of the basic loop parameters; • Calculation and evaluation of basic knitting parametersKnitted fabric/knitwear design; • Experimental knittng.

Temeljna literatura in viri/Readings:

- PAVKO ČUDEN, A. Pletiva in pletenine (skripta), Oddelek za tekstulstvo, grafiko in oblikovanje, Ljubljana, 2007
- SPENCER, D.J. Knitting Technology: A Comprehensive Handbook and Practical Guide, Woodhead Publishing Series in Textiles, 3rd Edition, Cambridge, 2001.
- RAZ, S. Flat Knitting Technology, Universal Machinenfabrik, Westhausen 1993.
- RAZ, S. Flat knitting: The New Generation, Meisenbach, Bamberg 1991.
- RAZ, S. Warp Knitting Production. Heidelberg : Melliand, 1987;
- IYER, C., MAMMEL, B., in SCHÄCH, W. Circular Knitting. Bamberg : Meisenbach, 1995;
- Revije / journals: Knitting International, Kettenwirk-Praxis, Giornale della Maglieria e della Calzetteria.

Literatura je dosegljiva v knjižnici Oddelka za tekstilstvo. / The literature is accessible in the library of the Department of Textiles, Graphic Arts and Design.

Cilji in kompetence:	**Objectives and competences:**
Cilji: 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; • Obvladovanje ekonomične porabe materiala, časa in energije pri pletilskih postopkih; • 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:** Students learn about the basic types of knitted fabrics/knitwear produced by different knitting technologies and techniques; At the same time, they learn about the constructional features of the knitting equipment and the properties 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; • Mastering the economical use of material, time and energy in knitting processes; • 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:	**Intended learning outcomes:**
Znanje in razumevanje: • Študent/ka 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 strokovno terminologijo s področja pletenja v slovenskem in najmanj enem svetovnem tujem jeziku; • Razume vpliv parametrov surovin, strukture pletiva in pletilskega procesa na lastnosti in kakovost pletiva/pletenine. **Uporaba**: • Študent/ka zna razviti novo pletivo/pletenino; • Zna izbrati optimalno surovino in izdelavno pletilsko tehnologijo za načrtovan pleten izdelek; • Zna predvideti uporabne lastnosti pletiva/pletenine; • Zna izvesti neodvisno tehniško presojo na področju pletenja.	**Knowledge and understanding**: • The student knows individual knitting technologies and techniques; • He/she knows constructional, physical and performance properties of knitted fabrics/knitwear; • He/she is able to assess the advantages, disadvantages and specifics of individual types of knitted fabrics/knitwear; • He/she masters professional terminology in the field of knitting in Slovenian and at least one foreign language; • He/she understands the influence of raw material, structural and knitting process parameters on properties and quality of knitted fabrics/knitwear. **Application**: • The student can develop new knitted fabric/knitwear; • He/she can select the optimal raw material and fabrication knitting technology for the planned knitted product; • He/she can foresee the performance properties of knitted fabrics/knitwear; • He/she can carry out an independent technical assessment in the field of knitting.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminar, projektno delo, panelna razprava, laboratorijske vaje, računske vaje.	Lectures, seminar, project work, panel discussion, laboratory work, computational exercises.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
pisni/ustni izpit	60,00 %	written/oral exam
izpit iz računskih vaj	30,00 %	exam in computational exercises
opravljena predstavitev projektnega dela	10,00 %	presentation of the project work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. PAVKO-ČUDEN, Alenka. Recent developments in knitting technology. V: MAITY, Subhankar (ur.), et al. Advanced knitting technology. [Cambridge]: Woodhead publishing, 2021. Str. [13]-66, ilustr. The Textile Institute book series. ISBN 978-0-323-85534-1.
2. PAVKO-ČUDEN, A. Novosti na področju pletenja - Techtextil in Itma 2019, Tekstilec, ISSN 0351-3386, 2020, letn. 63, priloga 1, str. S74-S91.
3. PAVKO-ČUDEN, A., RANT, D. Multifunctional foldable knitted structures : fundamentals, advances and applications. V: KUMAR, Bipin (ur.), THAKUR, Suman (ur.). Textiles for advanced applications, (Physical Sciences, Engineering and Technology, Technology). Rijeka: InTech. 2017, str. [55]-84.
4. PAVKO-ČUDEN, Alenka. Pletiva in pletenine : gradivo za izpit : delovni zvezek za vaje in seminar. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2007.

LEATHER AND FUR

Predmet:	Usnje in krzno
Course title:	Leather and fur
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068711
Koda učne enote na članici/UL Member course code:	11150

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

Nosilec predmeta/Lecturer:	Marija Gorjanc
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; • Trgovanjez 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; • Orodja za izdelavo produktov iz usnja in 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; • Tools for production of leather and fur products;

Temeljna literatura in viri/Readings:

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: **Objectives and competences:**

Cilj je seznaniti študenta o virih, vrstah, pridobivanju in uporabnosti 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.	**The objective** is teach students about the sources, types, acquisition and utility of 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:	**Intended learning outcomes:**
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.	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:	**Learning and teaching methods:**
Predavanja, seminar, delavnice, ekskurzije.	Lectures, seminars, workshops, excursions.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
izpit	50,00 %	exam
seminar	50,00 %	seminar

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. PRIMOŽIČ, Ivi, OSTOJIČ SEDONJA, Katarina, GORJANC, Marija. Razvoj umetnega usnja iz olupka granatnega jabolka in izdelava torbice ter drobižnice = Devekopment of artificial leather from pomegranate peel and production of purse and coin wallet. V: KERT, Mateja (ur.), TOMŠIČ, Brigita (ur.). *Trajnost in krožno gospodarstvo v tekstilstvu : zbornik izvlečkov : 49. simpozij o novostih v tekstilstvu : 5. oktober 2023, Ljubljana, Slovenija.* 49. simpozij o novostih v tekstilstvu, 5. oktober 2023, Ljubljana. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2023. Str. 41. ISBN 978-961-7189-08-7. [COBISS.SI-ID 167765763]
2. GORJANC, Marija, OKRŠLAR, Marija. Doma vzgojena bakterijska celuloza kot alternativa materialom v modni industriji. V: BERLEC, Tomaž (ur.), BROJAN, Miha (ur.), DROBNIČ, Boštjan (ur.). *ŠTeKam : Študentska tehniška konferenca : Fakulteta za strojništvo, Ljubljana, 7. 9. 2023*. Ljubljana: Fakulteta za strojništvo, 2023. Str. 42-49, ilustr. ISBN 978-961-7187-01-4. [COBISS.SI-ID 164115715]
3. OGRIZEK, Linda, LAMOVŠEK, Janja, ČUŠ, Franc, LESKOVŠEK, Mirjam, GORJANC, Marija. Properties of bacterial cellulose produced using white and red grape bagasse as a nutrient source. *Processes*. [Online ed.]. 2021, vol. 9, iss. 7, str. 1-15, ilustr. ISSN 2227-9717. https://www.mdpi.com/2227-9717/9/7/1088, https://repozitorij.uni-lj.si/IzpisGradiva.php?id=135870, DOI: 10.3390/pr9071088. [COBISS.SI-ID 68226819]

MARKETING OF TEXTILES AND CLOTHING

Predmet:	Trženje tekstilij in oblačil
Course title:	Marketing of textiles and clothing
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0108510
Koda učne enote na članici/UL Member course code:	11145

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

Nosilec predmeta/Lecturer:	Mateja Kos Koklič
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; • Oblikovanje trženjskega spleta novih tekstilnih in oblačilnih izdelkov; • Oblikovanje in upravljanje z blagovnimi znamkami tekstilij in oblačil; • Principi trajnostnega trženja; • Digitalizacija v trženju, digitalno trženje; • Sodobna strokovna terminologija s področja trženja tekstilij in oblačil v slovenskem in angleškem jeziku.	• 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; • Development of marketing mix for new textile and clothing products; • Creating a brand of textiles and clothing collections; • Principles of sustainable marketing; • Digitalization in marketing, digital marketing; • Professional terminology in marketing of textiles and clothing in Slovenian and English language.

Temeljna literatura in viri/Readings:

1. KONEČNIK RUZZIER, M. Temelji trženja. Ljubljana: Meritum, 2024;
2. HINES, M. (2024). Fashion Marketing: Contemporary Issues (3. izdaja).
3. MITTERFELLNER, O. (2019). Fashion marketing and communication: Theory and practice across the fashion industry. Routledge. .

Cilji in kompetence:	**Objectives and competences:**
Cilji: • Razumevanje vloge in pomena trženja v procesu ustvarjanja visoke dodane vrednosti kolekcij tekstilij in oblačil v luči trajnosti in digitalizacije. **Kompetence**: • Sposobnost aktivnega sodelovanja pri razvoju novih tekstilnih in oblačilnih izdelkov s pomočjo poznavanja potrošnikov; • Prenos teoretičnega strokovnega znanja s področja trženja tekstilij in oblačil v prakso. Upoštevanje principov trajnosti in digitalizacije v procesu trženja.	**Objectives**: • Understanding the role of marketing in the process of creating high value-added textile and clothing collections in the light of sustainability and digitalization. **Competencies**: • The ability to actively participate in the development of new textile and apparel products with the help of knowledge about consumers; • Transfer of theoretical expertise from the field of marketing of textiles and clothing into practice. Considering the principles of sustainability and digitization in the marketing process.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Razumevanje pomena tržnih raziskav v tržno usmerjenem tekstilnem/oblačilnem podjetju; • Razumevanje pomena segmentacije tržišča pri oblikovanju novih tekstilnih/oblačilnih kolekcij; • Razumevanje in interpretacija globalnih modnih smernic in njihov vpliv na različne ciljne skupine; • Razumevanje in analiziranje vplivov mikro in makro okolja na nakupno vedenje ciljnih skupin potrošnikov; • Razumevanje bodočih potreb in želja potrošnikov v povezavi z razvojem trženjskega spleta novih tekstilnih/oblačilnih izdelkov, znanj in storitev na tržišču; • 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,; • Razumevanje vloge trajnosti in digitalizacije v procesu trženja; • Obvladovanje sodobne strokovne terminologije s področja trženja tekstilij in oblačil.	**Knowledge and understanding**: • Understanding the role of market research in market-oriented textile / clothing company; • Understanding the importance of market segmentation in developing new textile / clothing collections; • Understanding and interpretation of global fashion trends and their impact on various target groups; • Understanding and analyzing the effects of micro and macro environment on buying behavior of target groups; • 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; • 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; • Understanding the role of sustainability and digitalization in the marketing process; • Mastery of the current professional terminology from the area of marketing of textiles and clothing.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminarsko delo, skupinsko delo.	Lectures, Seminar work, team work.

Načini ocenjevanja:	Delež/Weight	Assessment:
Pisni izpit	50,00 %	Writtem exam
Individualno seminarsko delo	30,00 %	Individual seminar work
Skupinsko delo	20,00 %	Team work

Ocenjevalna lestvica:	Grading system:
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. KOS KOKLIČ, Mateja, KUKAR-KINNEY, Monika, VIDA, Irena. Consumers' de-ownership as a predictor of dark-side digital acquisition behavior: moderating role of moral intensity and collectivism. Journal of business research. Jan. 2022, vol. 138, str. 108-116.
2. CULIBERG, Barbara, CHO, Hichang, KOS KOKLIČ, Mateja, ŽABKAR, Vesna. The role of moral foundations, anticipated guilt and personal responsibility in predicting anti-consumption for environmental reasons. Journal of business ethics. Jan. 2023, vol. 182, iss. 2, str. 465-481.
3. GIDAKOVIĆ, Petar, KOS KOKLIČ, Mateja, ZEČEVIĆ, Mila, ŽABKAR, Vesna. The influence of brand sustainability on purchase intentions : the mediating role of brand impressions and brand attitudes. Journal of brand management. Nov. 2022, vol. 29, iss. 6 (spec. iss.), str. 556-568.

MATHEMATICS 1

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Grafične in interaktivne komunikacije, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code: 0642798

Predavanja /Lectures	Seminar /Seminar	Vaje /Tutorials	Klinične vaje /Clinical tutorials	Druge oblike študija /Other forms of study	Samostojno delo /Individual student work	ECTS
45	0	45	0	0	90	6

Nosilec predmeta/Lecturer: Janko Bračič

Vrsta predmeta/Course type: Obvezni/Compulsory

Jeziki/Languages:

Predavanja/Lectures:	Slovenščina
Vaje/Tutorial:	Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Vpis v 1. letnik. Obvezna udeležba pri predmetu: predavanja 70%, vaje 90%.	Entering first year class. Mandatory participation: lectures 70%, tutorials 90%.

Vsebina:	Content (Syllabus outline):
Števila (naravna in cela števila, racionalna in 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, premice in ravnine v R3.) Zaporedja in vrste (osnove, aritmetično in geometrijsko zaporedje, stekališča, limite, vrste, konvergenca).	Numbers (integers, rational and real numbers, complex numbers). Matrices (operations with matrices, determinants, inverse of a matrix, systems of linear equations, Cramer's method, Gauss' method). Vectors (vectors in plane and space, inner product, vector product and mixed product, lines and planes in R3). Sequences and series (basics, arithmetic and geometric sequences, accumulation points, limits, series, convergence).

Temeljna literatura in viri/Readings:

- BRAČIČ, Janko, *Matematika za visokošolske strokovne programe*, Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za materiale in metalurgijo, 2016.

- BRAČIČ, Janko, *Matematika 1-2: števila, funkcije, linearna algebra*, Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za materiale in metalurgijo, 2021.
- BRAČIČ, Janko, *Priprave na izpit iz matematike,* Naravoslovnotehniška fakulteta, 2022, 179 str.

Spletni strani:
- http://sl.wikipedia.org/wiki/Kategorija:Matematika;
- http://mathworld.wolfram.com/

Cilji in kompetence:	**Objectives and competences:**
Predmet obravnava elementarno linearno algebro. Študenti se seznanijo z osnovnimi pojmi iz linearne algebre in njihovo uporabo. Večina izrekov je podanih brez dokazov. Poudarek je na učenju standardnih metod za reševanje problemov iz linearne algebre. Namen vaj je utrditev predavane snovi in pridobitev računske prakse. Predmet je podlaga tako za strokovne kakor za druge osnovne predmete.	Elementary linear algebra is presented. Students becomes familiar with basic notions from linear algebra and get skilled in their use. Theorems are usually stated without proofs. The emphasis is on standard methods for solving problems related to linear algebra. The aim of the tutorials is in practicing. The subject is a basis for several other subjects.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študenti so seznanjeni z osnovnimi pojmi in metodami iz linearne algebre in jih znajo uporabiti na svojem strokovnem področju.	Students are familiar with basic notions and methods in linear algebra and they are able to use this knowledge in their own professional area.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja in vaje s praktičnimi računskimi primeri in nalogami.	Lectures and tutorials with explicit numerical examples and exercises.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni del izpita, ki pokriva celotno snov, je opravljen, če kandidat doseže vsaj 50% točk. Pisni del izpita se lahko opravi s kolokviji (tekom semestra sta dva kolokvija, ki vsak pokriva le del snovi). Pisni del je opravljen s kolokviji, če kandidat zbere na kolokvijih v povprečju 50% točk ali več.	70,00 %	The written part of the exam, which covers the entire subject, is passed if the candidate achieves at least 50% of the points. The written part of the exam can be done with colloquia (there are two colloquia during the semester, each covering only a part of the subject). The written part is passed with colloquia, if the candidate collects on average 50% of points or more.
Teoretični del izpita pokriva celotno snov in ga kandidat lahko opravlja, če je že opravil pisni del izpita. Teoretični del izpita se lahko opravlja s testom, ki ga kandidat piše, ali z ustnim izpitom. Teoretični del izpita je opravljen, če je kandidat zbral vsaj 50% točk na testu oz. je vsaj na 50% vprašanj na ustnem izpitu pravilno odgovoril.	30,00 %	The theoretical part of the exam covers the entire subject and a candidate can take it if he has already passed the written part of the exam. The theoretical part of the exam can be prepared as a test written by a candidate or as an oral exam. The theoretical part of the exam is passed if the candidate has collected at least 50% of the points on the test or has answered correctly at least 50% of the questions in the oral exam.

Ocenjevalna lestvica:	**Grading system:**

Reference nosilca/Lecturer's references:

1. BRAČIČ, Janko, KANDIĆ, Marko, *Hyperinvariant subspaces for sets of polynomially compact operators.* Annals of Functional Analysis 13, Article number: 71 (2022).

2. BRAČIČ, Janko, KANDIĆ, Marko, *On the normalizer of the reflexive cover of a unital algebra of linear transformations*. Linear Algebra and its Applications 653 (2022), 207-230.

3. BRAČIČ, Janko. *Local commutants and ultrainvariant subspaces*. Journal of mathematical analysis and applications, vol. 506, iss. 2, art. 125693, 2022, (19 str.).

4. BRAČIČ, Janko, DIOGO, Cristina, ZAJAC, Michal. *Reflexive sets of operators*. Banach journal of mathematical analysis: an international electronic journal, vol. 12, no. 3, 2018, str. 751-771.

5. BRAČIČ, Janko. *Arens regularity and weakly compact operators*. Filomat, vol. 32, no. 14, 2018, str. 4993-5002.

MATHEMATICS 2

Predmet:	Matematika 2
Course title:	Mathematics 2
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Grafične in interaktivne komunikacije, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code: 0642799

Predavanja /Lectures	Seminar /Seminar	Vaje /Tutorials	Klinične vaje /Clinical tutorials	Druge oblike študija /Other forms of study	Samostojno delo /Individual student work	ECTS
45	0	45	0	0	90	6

Nosilec predmeta/Lecturer: Janko Bračič

Vrsta predmeta/Course type: Obvezni/Compulsory

Jeziki/Languages:

Predavanja/Lectures:	Slovenščina
Vaje/Tutorial:	Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Vpis v 1. letnik. Obvezna udeležba pri predmetu: predavanja 70%, vaje 90%.	Entering first year class. Mandatory participation: lectures 70%, tutorials 90%.

Vsebina:	Content (Syllabus outline):
Osnove realnih funkcij ene spremenljivke (osnovni pojmi, računanje s funkcijami, inverz bijektivne funkcije, pregled elementarnih funkcij, zveznost, limite).0 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). 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, dolžina loka krivulje).	Basics of real functions of one variable (basic notions, operations between functions, inverse, outline of elementary functions, continuity, limits). 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, diferential of a function). Integrals (table of indefinite integrals, different integration technics: new variable, per-partes, integration of rational functions, definition of definite integral, applications: area, volume, length of an arc of a curve).

Temeljna literatura in viri/Readings:

- BRAČIČ, Janko, *Matematika za visokošolske strokovne programe*, Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za materiale in metalurgijo, 2016.
- BRAČIČ, Janko, *Matematika 1-2: števila, funkcije, linearna algebra*, Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za materiale in metalurgijo, 2021.
- BRAČIČ, Janko, *Priprave na izpit iz matematike,* Naravoslovnotehniška fakulteta, 2022, 179 str.

Spletni strani:

- http://sl.wikipedia.org/wiki/Kategorija:Matematika;
- http://mathworld.wolfram.com/

Cilji in kompetence:	**Objectives and competences:**
Predmet obravnava elementarno teorijo funkcij ene spremenljivke. Študenti se seznanijo z osnovnimi pojmi iz realne analize in z njihovo uporabo. Večina izrekov je podanih brez dokazov. Poudarek je na učenju standardnih metod za reševanje problemov iz teorije funkcij ene spremenljivke. Namen vaj je utrditev predavane snovi in pridobitev računske prakse. Predmet je podlaga tako za strokovne kakor za druge osnovne predmete.	Elementary theory of real functions of one variable is presented. Students becomes familiar with basic notions from real analysis and get skilled in their use. Theorems are usually stated without proofs. The emphasis is on standard methods for solving problems related to functions of one variable. The aim of the tutorials is in practicing. The subject is a basis for several other subjects.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študenti so seznanjeni z osnovnimi pojmi in metodami iz teorije realnih funkcij ene spremenljivke in jih znajo uporabiti na svojem strokovnem področju.	Students are familiar with basic notions and methods in the theory of real functions of one variable and they are able to use this knowledge in their own professional area.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja in vaje s praktičnimi računskimi primeri in nalogami.	Lectures and tutorials with explicit numerical examples and exercises.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni del izpita, ki pokriva celotno snov, je opravljen, če kandidat doseže vsaj 50% točk. Pisni del izpita se lahko opravi s kolokviji (tekom semestra sta dva kolokvija, ki vsak pokriva le del snovi). Pisni del je opravljen s kolokviji, če kandidat zbere na kolokvijih v povprečju 50% točk ali več.	70,00 %	The written part of the exam, which covers the entire subject, is passed if the candidate achieves at least 50% of the points. The written part of the exam can be done with colloquia (there are two colloquia during the semester, each covering only a part of the subject). The written part is passed with colloquia, if the candidate collects on average 50% of points or more.
Teoretični del izpita pokriva celotno snov in ga kandidat lahko opravlja, če je že opravil pisni del izpita. Teoretični del izpita se lahko opravlja s testom, ki ga kandidat piše, ali z ustnim izpitom. Teoretični del izpita je opravljen, če je kandidat zbral vsaj 50% točk na testu oz. je vsaj na 50% vprašanj na ustnem izpitu pravilno odgovoril.	30,00 %	The theoretical part of the exam covers the entire subject and a candidate can take it if he has already passed the written part of the exam. The theoretical part of the exam can be prepared as a test written by a candidate or as an oral exam. The theoretical part of the exam is passed if the candidate has collected at least 50% of the points on the test or has answered correctly at least 50% of the questions in the oral exam.

Ocenjevalna lestvica:	**Grading system:**

Reference nosilca/Lecturer's references:

1. BRAČIČ, Janko, KANDIĆ, Marko, *Hyperinvariant subspaces for sets of polynomially compact operators.* Annals of Functional Analysis 13, Article number: 71 (2022).
2. BRAČIČ, Janko, KANDIĆ, Marko, *On the normalizer of the reflexive cover of a unital algebra of linear transformations*. Linear Algebra and its Applications 653 (2022), 207-230.
3. BRAČIČ, Janko. *Local commutants and ultrainvariant subspaces*. Journal of mathematical analysis and applications, vol. 506, iss. 2, art. 125693, 2022, (19 str.).
4. BRAČIČ, Janko, DIOGO, Cristina, ZAJAC, Michal. *Reflexive sets of operators*. Banach journal of mathematical analysis: an international electronic journal, vol. 12, no. 3, 2018, str. 751-771.
5. BRAČIČ, Janko. *Arens regularity and weakly compact operators*. Filomat, vol. 32, no. 14, 2018, str. 4993-5002.

NONCONVENTIONAL FIBROUS MATERIALS

Predmet:	Nekonvencionalni vlaknati materiali
Course title:	Nonconventional fibrous materials
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code: 0642822

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

Nosilec predmeta/Lecturer: Marija Gorjanc, Tatjana Rijavec

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.	Enrolment into study year.

Vsebina:	**Content (Syllabus outline):**
• Tekstilije iz naravno obarvanih rastlinskih in živalskih vlaken. • Trajnostno pridelana rastlinska vlakna. • Predelava dlake domačih živali. • Biomimetika struktur v tekstilstvu (posnemanje kože morskega psa, lupin sadežev in plodov, iridiscenca ipd.). • Tekstilije iz drevesnega lubja (lubje murve, figovca, kruhovca, fikusov, plutovca …). • Tekstilije iz odpadkov poljedelske, živilskopredelovalne in prehrambene industrije (različne vrste umetnega usnja, bakterijska celuloza, nova celulozna in beljakovinska vlakna, ipd).	• Textiles of naturaly dyed bast and animal fibres. • Fibres from sustainable grown plants. • Hair processes of domestic animals (dogs, cats). • Biomimetics of natural structures in textiles (imitation of shark skin, peel of fruits , iridescence, etc.). • Textiles from tree bark (bark of mulberry, fig, bread, ficus, cork …). • Textiles from from agricultural waste, food processing waste and waste food (various types of artificial leather, bacterial cellulose, new cellulose and protein fibers, etc.)

Temeljna literatura in viri/Readings:

- *Organic cotton: is it a sustainable solution?* Uredila Miguel Angel Gardetti in Subramanian Senthilkannan Muthu. Springer Nature Singapore, 2019. (dostopno online Organic Cotton: Is it a Sustainable Solution? | SpringerLink)

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:	**Objectives and competences:**
• Razvoj analitičnega, abstraktnega in konceptualnega pristopa k razvoju novih vlaknatih materialov, primernih za izdelavo oblačil in tehničnih tekstilij. • Spodbujanje inovativnega razmišljanja z namenom razvoja novih struktur in modifikacij že znanih postopkov predelave odpadnih materialov.	• Development of an analytical, abstract and conceptual approach to the development of new fibrous materials suitable for manufacturing of clothing and technical textiles. • Motivation of innovative thinking with the aim of developing new structures and modifications of already known waste recovery processes.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• Poznavanje in razumevanje nekonvencionalnih vlaknatih materialov in možnosti predelave v obliko, primerno za izdelavo oblačil in tehničnih izdelkov. • Študij tekstilno-tehnoloških lastnosti nekonvencionalnih vlaknatih materialov. • Analiza in ocena oblačila iz nekonvencionalnega vlaknatega materiala, prepoznavanje napak in možnosti plemenitenja.	• Knowledge and understanding of unconventional fibrous materials and the possibility of processing into a form suitable for the manufacture of clothing and technical textiles. • Study of textile technological properties of unconventional fibrous materials. • Analysis and evaluation of clothing made of unconventional fibrous material, identification of defects and possibilities of finishing.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja, individualne in skupinske laboratorijske vaje. • Študij literature v knjižnici, uporaba svetovnega spleta. • Študij izbrane nekonvencionalne tekstilije in njena predstavitev.	• Lectures, individual and team tutorials. • Study of literature using library, use of the World Wide Web. • Study of a selected nonconventional textile and its presentation.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit.	60,00 %	Written exam.
Vaje in predstavitev nekonvencionalne tekstilije.	40,00 %	Tutorial and presentation of nonconventional textile.

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

Rijavec Tatjana

1. RIJAVEC, Tatjana. Od odpadkov živilske industrije in odpadne plastike do visoke mode = From food industry and plastic waste to heute couture. V: OREL, Zala (ur.), et al. *BIEN 2021, 26. 5.-14. 8. : bienale tekstilne umetnosti = Textile Art Biennial : Kranj, Radovljica, Škofja Loka*. Kranj: Layerjeva založba, 2021. Str. 136. ISBN 978-961-94731-5-3. https://issuu.com/layerjeva_hisa/docs/bien_katalog2021_issuu. [COBISS.SI-ID 77181955].
2. RIJAVEC, Tatjana, ZUPIN, Živa. Tekstilije iz novih sojinih proteinskih vlaken (SPF) = Textiles from new soybean protein fibres (SPF). *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2011, letn. 54, št. 10/12, str. 213-227, ilustr. ISSN 0351-3386. [COBISS.SI-ID 2712176].

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. ISBN 978-953-307-533-4. http://www.intechopen.com/articles/show/title/soybean-protein-fibres-spf-. [COBISS.SI-ID 2648944].

Marija Gorjanc

1. OGRIZEK, Linda, LAMOVŠEK, Janja, ČUŠ, Franc, LESKOVŠEK, Mirjam, GORJANC, Marija. Properties of bacterial cellulose produced using white and red grape bagasse as a nutrient source. *Processes*, ISSN 2227-9717. [Online ed.], 2021, vol. 9, iss. 7, str. 1-15, ilustr. https://www.mdpi.com/2227-9717/9/7/1088, doi: 10.3390/pr9071088. [COBISS.SI-ID 68226819].
2. ČUK, Nina, ŠALA, Martin, GORJANC, Marija. Development of antibacterial and UV protective cotton fabrics using plant food waste and alien invasive plant extracts as reducing agents for the in-situ synthesis of silver nanoparticles. *Cellulose*. Mar. 2021, vol. 28, iss. 5, str. 3215-3233, ilustr. ISSN 0969-0239. https://link.springer.com/article/10.1007/s10570-021-03715-y, DOI: 10.1007/s10570-021-03715-y.
3. DEEPA, B., ABRAHAM, E., CORDEIRO, Nereida, FARIA, Marisa, PRIMC, Gregor, POTTA THARA, Yasir Beeran, LESKOVŠEK, Mirjam, GORJANC, Marija, MOZETIČ, Miran, THOMAS, Sabu, POTHAN, L. A. Nanofibrils vs nanocrystals bio-nanocomposites based on sodium alginate matrix : an improved-performance study. *Heliyon*. 2020, vol. 6, iss. 2, str. e03266-1-e03266-9. ISSN 2405-8440. DOI: 10.1016/j.heliyon.2020.e03266.

NONWOVENS

Predmet:	Vlaknovine
Course title:	Nonwovens
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code: 0643006

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

Nosilec predmeta/Lecturer: Dunja Šajn Gorjanc

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 letnik študija.	**Enrolment into study year.**

Vsebina:	**Content (Syllabus outline):**
• Trendi razvoja proizvodnje in porabe vlaknovin. • Klasifikacija vlaknovin. Teorija in tehnologija procesnih faz izdelave vlaknovin. • Postopki izdelave koprenskih tekstilij. Teorija in tehnologija suho in mokro položenih-naplavljenih koprenskih tekstilij. Teorija in tehnologija ekstrudiranih koprenskih tekstilij. • Utrjevanje koprenskih tekstilij. • Teorija in tehnologija dodelave netkanih tekstilij.	• Trends in the development and consumption of nonwovens. • Classification 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 technology of extruded web formation of nonwovens. • Web bonding of nonwovens. • Theory and technology of nonwoven fabric finishing process.

Temeljna literatura in viri/Readings:

- ŠAJN GORJANC, Dunja. *Netkane tekstilije : spletna učilnica - VS-TOI-L01*. Ljubljana: Naravoslovnotehniška fakulteta, [2021]. https://ucilnica.ntf.uni-lj.si/course/view.php?id=620. [COBISS.SI-ID 86257923]

- ŠAJN GORJANC, Dunja. *Procesne linije za izdelavo koprenskih tekstilij : študijsko gradivo*. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, Katedra za tekstilno in oblačilno inženirstvo, 2021. 1 zv. (loč. pag.), ilustr. https://www.ntf.uni-lj.si/toi/wp-content/uploads/sites/7/2015/07/Procesne-linije-za-izdelavo-koprenskih-tekstilij-1.pdf.
- ŠAJN GORJANC, Dunja. Postopki izdelave netkanih tekstilij in kompozitov : študijsko gradivo. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2015.
- NIKOLIĆ, M., in NIKOLIĆ, Z. Netkane tekstilije. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2004.
- RUSSEL, S., J.. Handbook of Nonwovens. Elsevier Science, 2015

Cilji in kompetence:

Cilji:

- Študenti spoznajo temeljne principe izdelave različnih vrst enoplastnih in večplastnih vlaknovin oz. 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 kako različne procesne faze vplivajo na strukturo, mehansko-fizikalne, prepustne in izolacijske lastnosti različnih zgradb in struktur koprenskih tekstilij.
- Spoznajo področja uporabe vlaknovin in najnovejše dosežke na različnih področjih izdelave in aplikacije vlaknovin.

Kompetence:

- Poznavanje vpliva različnih surovinskih in tehnoloških parametrov na strukturne in uporabne lastnosti vlaknovin in različnih vrst vlaknovin;
- Razumevanje vpliva različnih tehnoloških faz, postopkov utrjevanja in stopnje dodelave na lastnosti polizdelkov in končnih izdelkov;
- Poznavanje metodologije napovedovanja lastnosti in značilnosti vlaknovin in opredelitev optimalnih aplikacij le-teh;
- Načrtovanje procesnih linij z opredelitvijo produktivnosti, porabe energentov in cene vlaknovin;
- Spoznavanje strokovne terminologije s področja vlaknovin.

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.
- Students recognize how different process phases affect the structure, mechanical-physical, permeable and insulating properties of various buildings and structures of nonwoven textiles.
- They recognize the fields of use of nonwoven textiles and the latest achievements in various fields of manufacture and application of nonwoven textiles.

Competences:

- 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;
- Understanding the influence of different technological phases, web bonding processes and degree of finishing on the properties of semi-finished products and finished products;
- According to the consolidation process, the methodology for predicting the characteristics and characteristics of nonwoven textiles and defining the optimal applications of these materials;
- Design process lines with the definition of productivity, energy consumption and the price of nonwoven textiles;
- Learning about professional terminology from nonwoven textiles.

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje:	**Knowledge and understanding**:
• Pozna strukturne in kakovostne lastnosti ter področja uporabe različnih vrst vlaknovin; • Pozna teoretično in tehnološko načrtovanje in izbiro optimalne procesne linije za izdelavo različnih vrst in struktur vlaknovin; • Razume vplive različnih tehnoloških faz na kakovost polizdelkov in izdelkov; • Zna strokovno in argumentirano izbrati optimalne postopke utrjevanja koprenskih tekstilij glede na namembnost le-teh.	• Knowledge of the structural and qualitative characteristics and uses of various types of nonwoven textiles; • Knowledge of theoretical and technological planning and selection of the optimal process line for the production of various types and structures of nonwoven textiles; • Understanding the impacts of different technological phases on the quality of semi-finished products and end products; • Knowledge of professionally and argumentatively to choose the optimal processes for consolidating nonwoven textiles according to their purpose.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja in vaje.	Lectures and exercises.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Ustni ali pisni izpit.	75,00 %	Oral or written exam.
Ustni ali pisni izpit iz vaj.	25,00 %	Oral or written tutorial exam.

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ČEPIČ, Gracija, ŠAJN GORJANC, Dunja. Influence of the web formation of a basic layer of medical textiles on their functionality. *Polymers*. 2022, vol. 14, iss. 11, str. 1-23.
2. BATIČ, Eva, ŠAJN GORJANC, Dunja. Characteristics of laminates for car seats. *AUTEX research journal*, ISSN 1470-9589. [Print ed.], 29 Sep 2020, vol. , no. , 14 str. https://content.sciendo.com/view/journals/aut/ahead-of-print/article-10.2478-aut-2020-0032/article-10.2478-aut-2020-003xml,
3. BEZGOVŠEK, Špela, ŠAJN GORJANC, Dunja, PULKO, Boštjan, LENART, Stanislav. Influence of structural parameters of nonwoven geotextiles on separation and filtration in road construction. *AUTEX research journal*, ISSN 1470-9589. [Print ed.], Dec. 2020, vol. 20, no. 4, str. 449 - 460.
4. ŠAJN GORJANC, Dunja, BRAS, Ana, NOVAK, Boštjan. Influence of technology process on responsiveness of footwear nonwovens. *AUTEX research journal*, ISSN 1470-9589. [Print ed.], 19. Sep. 2019, vol. , no. , 13 str. https://content.sciendo.com/view/journals/aut/ahead-of-print/article-10.2478-aut-2019-005xml.
5. ŠAJN GORJANC, Dunja. Netkane tekstilije na Techtextilu 2019 = Nonwoven textiles at Techtextil 2019. *Tekstilec : glasilo slovenskih tekstilcev*, ISSN 0351-3386. [Tiskana izd.], 2020, vol. 63, priloga 1, str. SI 54-Sl 66.

PHYSIC 1

Predmet:	Fizika 1
Course title:	Physics 1
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Grafične in interaktivne komunikacije, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0642800
Koda učne enote na članici/UL Member course code:	11319

Predavanja /Lectures	Seminar /Seminar	Vaje /Tutorials	Klinične vaje /Clinical tutorials	Druge oblike študija /Other forms of study	Samostojno delo /Individual student work	ECTS
45	0	45	0	0	90	6

Nosilec predmeta/Lecturer:	Borut Paul Kerševan
Vrsta predmeta/Course type:	Obvezni/Compulsory

Jeziki/Languages:	Predavanja/Lectures:	Slovenščina
	Vaje/Tutorial:	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. Kinematika. **Mehanika:** Sile in Newtonovi zakoni (vklj.: sila lepenja in trenja, gravitacija nad in pod površjem, med telesi), navor sil, primeri iz dinamike; Statika; Gibalna količina (vklj.: težišče, sila curka, reaktivni pogon); Vrtilna količina (vklj.: vztrajnostni moment, zobniški prenosi); Delo, energija, moč (vklj.: prožnostna energija, rotacijska kinetična energija); Nihanje (vklj.: dušeno, vsiljeno nihanje, resonanca); Valovanje (vklj.: hitrost in energija valovanja, zvok, Dopplerjev pojav, stoječe valovanje);	**Introduction:** Scalar and vector variables, units, measurements, measurement uncertainties; Kinematics. **Mechanics:** Forces, Newton's laws (incl.: friction, gravitation above and below the Earth's surface), torque, examples from dynamics; Static equilibrium; Momentum (incl.: center of mass, jet force, reaction force); Angular momentum (incl.: moment of inertia, gears and transmission); Work, energy, power (incl.: elastic energy, rotational kinetic energy); Oscillations (incl.: dumped and forced osciallations, resonance);

Mehanika kontinuov: Elastomehanika (vklj.: nateg, stisljivost, elastični modul, natezna trdnost, torzija, strig, zveze med snovnimi elastičnimi konst.); Hidrostatika (vklj.: hidrost. tlak, hidr. naprave, vzgon, površinska napetost) Hidrodinamika (vklj.: Bernoullijeva en., pretok, viskoznost, upor v tekočini, dinamični vzgon).	Waves (incl.: wave speed and energy, sound, Doppler effect, standing waves); **Continuum mechanics:** Elasticity (incl.: stress and strain, elastic moduli, torsion, shear, relations among material constants); Hydrostatics (incl.: hydrostatic pressure, buoyancy, hydraulics, surface tension), hydrodynamics (incl.: Bernoulli equation, flux conservation, viscosity, drag and lift).

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);
R. Kladnik, Visokošolska fizika (DZS, 1991): 1. del (Mehanski in toplotni pojavi), 2. del (Elektrika in atomika), 3. del (Valovni pojavi)
D. Halliday, R. Resnick and J. Walker, Fundamentals of Physics (Wiley, 2003) (za tuje študente)

Cilji in kompetence:	**Objectives and competences:**
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; Sposobnost matematične formulacije problemov; Obvladovanje fizikalnih osnov metod in tehnik, s katerimi se bodo študenti srečevali; Formulacija problemov z izbiro potrebnih podatkov, metodo in interpretacijo meritev, ter upoštevanjem poenostavitev.	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: Understanding of laws of physics on which natural phenomena and measurement methods are based upon; Ability of mathematical formulation of problems; Mastering basic physics methods to be used by the students at later studies and work; Formulation of problems by selection of necessary data, method and simplifications, measurements interpretation.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Osnovne fizikalne zakonitosti, opisno ter v matematični formulaciji; medsebojno povezovanje le-teh. 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 srečavali. Razumevanje pojavov v naravi na podlagi preprostejših abstraktnih zakonitosti; utemeljevanje uporabljenih poenostavitev in približkov.	Knowledge and understanding: Basic laws of physics, descriptive and in mathematical formulation; interconnection among laws of physics. Analytic approach to problems and their deduction to basic physics mechanisms; examples of applications in the area of the program. Understanding of natural phenomena on the basis of simple (abstract) laws; justification of simplifications and approximations. Modelling of problems using simplifications; choice of necessary data and interpretation of measurements.

Modeliranje problemov z uporabo poenostavitev (zanemaritve nebistvenih lastnosti); izbira potrebnih podatkov; interpretacija meritev.	

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja z demonstracijskimi poskusi, vodeno in samostojno reševanje računskih vaj in problemov.	Lectures with demonstrations, assisted and individual problem solving

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisna ocena • 2 kolokvija ali • Pisni izpit	50,00 %	Written exam • 2 patial written exams or • Written exam
Teoretični izpit	50,00 %	Theory part

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

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];

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. 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];

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 [square root] 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];

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 [square root] 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].

PHYSIC 2

Predmet:	Fizika 2
Course title:	Physics 2
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Grafične in interaktivne komunikacije, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0642801
Koda učne enote na članici/UL Member course code:	11319

Predavanja /Lectures	Seminar /Seminar	Vaje /Tutorials	Klinične vaje /Clinical tutorials	Druge oblike študija /Other forms of study	Samostojno delo /Individual student work	ECTS
45	0	45	0	0	90	6

Nosilec predmeta/Lecturer:	Borut Paul Kerševan
Vrsta predmeta/Course type:	Obvezni/Compulsory

Jeziki/Languages:	Predavanja/Lectures:	Slovenščina
	Vaje/Tutorial:	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):**
Elektromagnetizem: Električni naboj, električno polje (vklj.: osnovni naboj, Coulombov zakon); Električna napetost (vklj.: kondenzator, polje v snovi, potencial, energija naboja v el. polju); Električni tok, Ohmov zakon in Kirchoffova izreka (vklj.: upornost snovi, prevajanje v kovinah, preprosti tokokrogi, el. moč); Magnetno polje (vklj.: Lorentzova sila, Amperov zakon) Indukcija in njena uporaba (vklj.: tuljava, generator, transformator, zaznavanje mag. polja); Elektromagnetno valovanje (vklj.: EM valovanje v snovi). **Optika:** Valovna optika (vklj.: interferenca, uklon rentgenskih žarkov);	**Electromagnetism:** Electric charge, electric field (incl.: elementary charge, Coulomb law); Voltage (incl.: capacitor, field in matter, potential, energy of a charge); Current, Ohm's law, Kirchoff's laws (incl.: resistivity, simple circuits, el. power); Magnetic field (incl.: Lorentz force, Ampere's law) Induction (incl.: coil, transformer, generator, measuring magnetic field); Electromagnetic waves (incl: EM field in matter). **Optics:** Wave optics (incl.: interference, X-ray diffraction); Ray optics (incl.: reflection, refraction, total reflection, microscope, telescope). **Thermodynamics:**

Geometrijska optika (vklj.: odboj, lom, popolni idboj, optične naprave - mikroskop, teleskop). **Termodinamika:** Temperatura (vklj.: merjenje temp., temp. raztezanje, bimetal); Energija, delo, toplota (1. zakon termodinamike); Enačbe stanj (vklj.: plinska enačba, fazni diagrami); Termodin. spremembe na plinu (vklj.: delo pri raztezanju, zveza med specifičnima toplotama); Entropija (2. zakon termodinamike) Fazne spremembe (vklj.: latentna toplota); Toplotni stroji (vklj.: izkoristki toplotnih strojev); Razširjanje toplote (vklj.: toplotno prevajanje, izolacija, Stefanov zakon). Atmosferska fizika (vklj.: modeli atmosfere, barometrska enačba, vlažnost). **Izbrane teme iz moderne fizike** (vklj.: fotoefekt, model atoma, radioaktivnost).	Temperature (incl.: measurements of T, expansion, bimetal); Energy, work, heat(1st law of thermodynamics); Equation of state (incl.: ideal gas law, phase diagram); Thermodynamic changes in gas (incl.: expansion work, specific heat relation); Entropy (2nd law of thermodynamics); Phase changes (incl.: latent heat); Heat engines (incl.: efficiencies); Heat dissipation (incl.: heat conduction, insulation, Stefan's law). Atmospheric physics (incl.: atmospheric models, barometric equation, humidity). **Selected topics in Modern Physics**: (incl. photoeffect, model of an atom, radioactivity).

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);
R. Kladnik, Visokošolska fizika (DZS, 1991): 1. del (Mehanski in toplotni pojavi), 2. del (Elektrika in atomika), 3. del (Valovni pojavi)
D. Halliday, R. Resnick and J. Walker, Fundamentals of Physics (Wiley, 2003) (za tuje študente)

Cilji in kompetence:	**Objectives and competences:**
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; Sposobnost matematične formulacije problemov; Obvladovanje fizikalnih osnov metod in tehnik, s katerimi se bodo študenti srečevali; Formulacija problemov z izbiro potrebnih podatkov, metodo in interpretacijo meritev, ter upoštevanjem poenostavitev.	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: Understanding of laws of physics on which natural phenomena and measurement methods are based upon; Ability of mathematical formulation of problems; Mastering basic physics methods to be used by the students at later studies and work; Formulation of problems by selection of necessary data, method and simplifications, measurements interpretation.

Predvideni študijski rezultati:	**Intended learning outcomes:**

Znanje in razumevanje: Osnovne fizikalne zakonitosti, opisno ter v matematični formulaciji; medsebojno povezovanje le-teh. 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 srečavali. Razumevanje pojavov v naravi na podlagi preprostejših abstraktnih zakonitosti; utemeljevanje uporabljenih poenostavitev in približkov. Modeliranje problemov z uporabo poenostavitev (zanemaritve nebistvenih lastnosti); izbira potrebnih podatkov; interpretacija meritev.	Knowledge and understanding: Basic laws of physics, descriptive and in mathematical formulation; interconnection among laws of physics. Analytic approach to problems and their deduction to basic physics mechanisms; examples of applications in the area of the program. Understanding of natural phenomena on the basis of simple (abstract) laws; justification of simplifications and approximations. Modelling of problems using simplifications; choice of necessary data and interpretation of measurements.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja z demonstracijskimi poskusi, vodeno in samostojno reševanje računskih vaj in problemov.	Lectures with demonstrations, assisted and individual problem solving

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisna ocena • 2 kolokvija ali • Pisni izpit	50,00 %	Written exam • 2 patial written exams or • Written exam
Teoretični izpit	50,00 %	Theory part

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

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];

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. 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];

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 [square root] 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];

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 [square root] 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].

PRACTICE/PROJECT WORK

Predmet:	Praksa/projektno delo
Course title:	Practice/project work
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code: 0642824

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

Nosilec predmeta/Lecturer: Alenka Pavko Čuden, Andrej Demšar, Barbara Simončič, Brigita Tomšič, Dunja Šajn Gorjanc, Marija Gorjanc, Matejka Bizjak , Petra Eva Forte Tavčer, Stanislav Praček, Tatjana Rijavec, Živa Zupin

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.	Enrolment into study year.

Vsebina:	Content (Syllabus outline):
• Opravljanje prakse v gospodarskih družbah in ustanovah s področja tekstilstva in oblačilstva (spoznavanje delovanja gospodarske ali negospodarske družbe, vključevanje v delovni proces) pod mentorstvom strokovnjaka v družbi in mentorja na fakulteti, ali • sodelovanje v interdisciplinarnem projektu na UL Naravoslovnotehniški fakulteti, Oddelku za tekstilstvo, grafiko in oblikovanje pod mentorstvom koordinatorja projekta.	• Completion of internship in a company/institution in the field of textiles and clothing (getting to know how a company/institution works, participating in the work process) under the supervision of an expert from the company/institution and a mentor at the faculty, or • Participation in an interdisciplinary project at the University of Ljubljana, Faculty of Natural Sciences and Engineering, Department of Textiles, Graphics and Design under the supervision of the project coordinator.

Temeljna literatura in viri/Readings:

- Monografije, članki, prispevki v zbornikih konferenc, posvetovanj in seminarjev, raziskovalne naloge (seminarske, diplomske, magistrske, doktorske), standardi, zakoni, komercialne predstavitve dejavnosti podjetij, spletne strani, blogi, podkasti, itd.

• Monographs, articles, proceedings of conferences and seminars, research papers (seminar, diploma, master, doctoral theses), standards, laws, commercial presentations of business activities, websites, blogs, podcasts, etc.

Cilji in kompetence:	**Objectives and competences:**
Cilj prakse/projektnega dela je omogočiti študentom preverjanje posredovanih teoretičnih znanj v gospodarskem ali raziskovalnem okolju, v katerem bodo delovali po zaključenim izobraževanju in jih nadgraditi z znanji, ki jih ni mogoče pridobiti pri predavanjih/seminarjih/vajah. **Predmetno specifične kompetence:** Študenti se pri praksi/projektnem delu seznanijo z delovanjem gospodarske družbe ali ustanove oz. raziskovalne organizacije, vodenjem in planiranjem projektov ter načrtovanjem novih izdelkov/storitev.	The **objective** of the practice/project work is to give students the opportunity to test the theoretical knowledge they have acquired at the faculty, in the business or research environment in which they will work after graduation, and to expand it with knowledge that cannot be acquired in lectures/seminars/exercises. **Subject-specific competencies**: During the practice / project work, students will learn about the operation of a company, institution or research organization, project management and planning, and new product / service design and planning.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• Spoznavanje konkretnega procesa dela v podjetju ali raziskovalnega projektnega dela na fakulteti. • Prepoznavanje specifičnih priložnosti in kariernih izzivov na področju dela v gospodarski družbi ali ustanovi s področja tekstilstva in inženirstva oz. na fakulteti. • Povezovanje obstoječega znanja s konkretnimi situacijami.	• Getting to know the concrete work process in a company or working on a faculty research project. • Recognizing specific opportunities and professional challenges of working in a company or institution in the field of textiles and clothing or at the faculty. • Linking existing knowledge to current situations.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Delovna praksa. • Možno je tudi delo na terenu in projektno delo na fakulteti.	• Work Practice. • Field work and faculty project work are also available.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Metoda ocenjevanja: seminarska naloga. Ocenjevalna lestvica: opravil / ni opravil.	100,00 %	The method of assessment: seminar. Grading scale: passed / not passed .

Ocenjevalna lestvica:	**Grading system:**

Reference nosilca/Lecturer's references:

Reference nosilcev predmetov. Lecturers' references.

PRETREATMENT OF TEXTILES

Predmet:	Priprava tekstilij na plemenitenje
Course title:	Pretreatment of textiles
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	2. semester	obvezni

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

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

Nosilec predmeta/Lecturer:	Petra Eva Forte Tavčer
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 letnik študija.	Enrolment into study year.

Vsebina:	Content (Syllabus outline):
• Postopki priprave tekstilnih substratov na plemenitenje: razškrobljenje, 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**: • Izvesti nekaj osnovnih postopkov predobdelav na različnih materialih ter analizirati učinke obdelav. **Seminar**: Samostojno obdelati določeno sodobno temo v okviru pripravljalnih del in jo predstaviti skupini.	• Processes of pretreatment of textile substrates to finishing: desizig, scouring, washing, bleaching, mercerizing, optical bleaching, thermofixtion, 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. **Seminar**: • Individual research on selected topic and its presentation to collegues.

Temeljna literatura in viri/Readings:

1. FORTE-TAVČER, P. Osnovni postopki priprave tekstilij na plemenitenje. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2005;
2. 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;
3. KARMAKAR, S. R. Chemical Technology in the Pretreatment Processes of Textiles. Amsterdam : Elsevier, 1999;

Cilji in kompetence:	**Objectives and competences:**
Študenti spoznajo vrste in namen pripravljalnih del pri plemenitenju tekstilij. • Poznavanje tehnoloških postopkov pripravljalnih del glede na specifičnost tekstilnega substrata. • Poznavanje strukturnih in površinskih sprememb tekstilnih substratov po posamezni obdelavi. • Sposobnost strokovne izbire sredstev in postopkov dela glede na želene uporabne lastnosti tekstilij. • Sposobnost ekološkega razmišljanja. • Poznavanje vplivov uporabljenih postopkov in sredstev na okolje.	Students get insight into sorts and purpose of pretreatment processes at finishing of textiles. • They understand the specific needs of different substrates and final products. • They understand the structural and surface changes on textile substrates after specific treatment. • They are able to select right chemicals and machines for specific results. • They have the ability of ecological thinking. • They understand the influence of treatments on environment and human helath.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Študent pozna namen pripravljalnih del in jih zna načrtovati ter smiselno vključiti v procese izdelave končnega izdelka. • Pozna vpliv pogojev obdelav na končne lastnosti tekstilij. • Pozna strojne naprave, kemikalije in optimalne pogoje obdelav. • Pozna kemizem pomožnih sredstev in kemične spremembe vlaken pri posameznih postopkih. • Zna oceniti rezultate obdelav. • Pozna negativne vplive na okolje in človeka in jih zna minimizirati. • Razume pomen vključevanja osnovnih biotehnoloških postopkov v tekstilne in druge industrijske procese.	• Student knows the purpose of pretreatment processes, Knows to plan them and to include them into final production of a product. • Knows the influence of treatment conditions on final properties of the product • Knows machines, chemicals and treatment conditions • Knows the chemical mechanisms of additives and chemical changes of fibers at single process • Knows to test the results of treatments • Knows the negative influences on environment and human helath and how to avoid them • Udnerstands the meaning of biotechnological process in textile and other industrial processes.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminar, laboratorijske vaje.	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

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. FORTE-TAVČER, Petra. Influence of bleach activators in removing different soils from cotton fabric. *Fibres & textiles in Eastern Europe : an international magazine devoted to current problems of the textile industries in Central and Eastern Europe*. 2020, vol. 141, issue 3, str. 74-78.
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*. 2015, vol. 85, no. 14, str. 1497-1505
3. 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],
4. 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],

PRINTING OF TEXTILES

Predmet:	Tiskanje tekstila
Course title:	Printing of textiles
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068752
Koda učne enote na članici/UL Member course code:	10032

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

Nosilec predmeta/Lecturer:	Petra Eva Forte Tavčer
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 letnik študija.	Enrolment into study year.

Vsebina:	Content (Syllabus outline):
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. črnil; • Pomen naknadnih obdelav; • Specialni postopki tiskanja; • Nove metode vrednotenja rezultatov in novi postopki tiskanja; • Ekološka problematika barvil, pomožnih sredstev in postopkov. **Vaje**: • Izdelava tiskarskih past, ročni tisk z različnimi sodobnimi barvili, jedki in rezervni tisk, izvedba transfernega tiska, izvedba digitalnega tiska.	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. **Practical work**: • Print paste production, hand screen printing with different dyes (reactive, vat, disperse, acid, pigments), discharge and reserve printing, transfer and digital printing.

Temeljna literatura in viri/Readings:

- FORTE-TAVČER, P. Tiskanje tekstilij : zapiski predavanj. Ljubljana : NTF, 2005.
- FORTE-TAVČER, P. Navodila za vaje iz tiskanja tekstilij. Ljubljana : NTF, 2005.
- MILES, L. W. C. Textile Printing. Bradford : SDC, 2004.
- STOREY, J. Textile Printing. London : Thames and Hudson, 1992.
- ROUETTE, H. K., LINDNER, A., in SCHWAGER, B. Lexikon für Textilveredlung. Dülmen : Laumann-Verlag, 1995.

Cilji in kompetence:	**Objectives and competences:**
• Študenti spoznajo postopke tiskanja tekstila. • Seznanijo se s tiskarskimi tehnikami, orodji, strojno opremo, s pripravo barvil in tiskarskih past ter s kemičnimi procesi pri tiskanju. • Povežejo strukturo vlaken z možnostmi aplikacije barvil ali drugih komponent. • Spoznajo zgodovino vzorčenja blaga s tiskanjem. • Spoznajo tehnično dokumentacijo in proizvajalce tiskarskih barvil in pomožnih sredstev.	• 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. • Students get insight into the conditions for reactions between dyes and fibers according to their structures. • They acquire the main producers of dyes and additives and how to manage their technical documentation.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Poznavanje in razumevanje: • Študenti spoznajo postopke tiskanja tekstila; • Seznanijo se s tiskarskimi tehnikami, orodji, strojno opremo, s pripravo barvil in tiskarskih past ter s kemičnimi procesi pri tiskanju; • Spoznajo zgodovinski razvoj tiskanja na tekstil; • Spoznajo tehnično dokumentacijo in proizvajalce tiskarskih barvil in pomožnih sredstev; • Uporabljajo ustrezne analizne metode za vrednotenje rezultatov dela.	Knowledge and understanding: • Students understand of the aim and the goals of printing processes of textiles; • They know the equipment, optimal processing conditions, auxiliaries and chemicals; • They know the preparation of printing pastes and fabrics; • They learn about technical documentation of dyes and auxiliaries; • They are able to assess and interpret the results of treatments; • They learn how to document the process conditions and the results; • They know how to include the sustainability into the process; • They can use the appropriate analytical techniques.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, seminarji, laboratorijske vaje.	Lectures, seminars, laboratory work.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Ustni / pisni izpit	50,00 %	Written / oral exam
Seminar work	10,00 %	Project
Kolokvij iz opravjenih vaj	40,00 %	Written exam in laboratory work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. GOLJA, Barbara, FORTE-TAVČER, Petra. Patterned printing of fragrant microcapsules to cotton fabric. *Coatings*. 26. april 2022, vol. 12, iss. 5, str. 1-12.
2. LAVRIČ, Gregor, KARLOVITS, Igor, MUCK, Deja, FORTE-TAVČER, Petra, KAVČIČ, Urška. Influence of ink curing in UV LED inkjet printing on colour differences, ink bleeding and abrasion resistance of prints on textile = Vpliv sušenja tiskarske barve v UV LED kapljičnem tisku na barvne razlike, razlivanje tiskarske barve in odpornost proti drgnjenju potiskanih tkanin. *Tekstilec : glasilo slovenskih tekstilcev*. 2021, vol. 64, [no.] 3, str. 221-229.
3. FORTE-TAVČER, Petra, ŠTULAR, Danaja, AHTIK, Jure. Digital printing of anaglyph images onto textile = Anaglyph görüntülerin dijital baski ile tekstil üzerine basilmasi. Tekstil ve konfeksiyon dergisi, ISSN 1300-3356, 2013, vol. 23, no. 4, str. 381-386.
4. FORTE-TAVČER, Petra, ŠTULAR, Danaja, AHTIK, Jure. Digital printing of anaglyph images onto textile = Anaglyph görüntülerin dijital baski ile tekstil üzerine basilmasi. *Tekstil ve konfeksiyon dergisi : journal of textile and apparel*, ISSN 1300-3356, 2013, vol. 23, no. 4, str. 381-386. [COBISS.SI-ID 2959216].

PRODUCTION MANAGEMENT

Predmet:	Upravljanje proizvodnje
Course title:	Production management
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068710
Koda učne enote na članici/UL Member course code:	10084

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

Nosilec predmeta/Lecturer:	Andrej Demšar
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. • Pogoj za opravljanje izpita sta pozitivno opravljena seminar in predstavitev seminarja o poljubno izbrani temi s področja.	• 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:	**Content (Syllabus outline):**
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, nomenklatura in normativi materiala, proces planiranja proizvodnega procesa in kapacitet (MRP), proizvodnja (transport, skladiščenje, kontrola proizvodnje), pomožne dejavnosti (vzdrževanje); primer iz prakse (vabljeno predavanje). • 2. del predavanj (ca 40 %) se posveča humanizaciji dela, pri čemer se dotaknejo	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 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).

predvsem optimalnemu organiziranju dela in delovnih mest ter normiranju in metodam, ki jih v ta namen uporabljamo. **Seminarske naloge** 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.	• 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. **Seminar assignments** 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.

Temeljna literatura in viri/Readings:

- MOŽINA, S., et al. Management. Radovljica : Didakta, 1994; LIPIČNIK, B. Organiziranje podjetja. Ljubljana : Ekonomska fakulteta, 1999.
- REBERNIK, M. Ekonomika podjetja. Ljubljana : Gospodarski vestnik, 1997.
- POLAJNAR, A. Upravljanje proizvodnje. Maribor : Ekonomsko-poslovna fakulteta, 1994.
- KALTNEKAR, Z. Organizacija delovnih procesov. Kranj : Moderna organizacija, 1996.
- 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:	**Objectives and competences:**
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 kot npr. SWOT analiza, vrednostna analiza, sistemizacija in vrednotenje zahtevnosti dela itd.; • Sposobnost uporabe temeljnega znanja pri vodenju delovnega procesa; • Razvoj spretnosti pri načrtovanju in izračunavanju tehnoloških zahtev izdelkov in storitev; • Upoštevanje in uvajanje humanizacije dela v proizvodni proces; • Poznavanje standardov in zakonov varstva pri delu; • Vodenje projektnega tima v proizvodnji.	**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; • 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 .; • Ability to apply basic knowledge in the management of the work process; • Developing skills in planning and calculating the technological requirements of products and services; • Consideration and introduction of work humanization to the production process; • Knowledge of standards and laws on occupational safety; • Managing the project team in production.

Predvideni študijski rezultati:	Intended learning outcomes:
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.	**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:
• Predmet je sestavljen iz predavanj in seminarskih nalog. • Predavanja (multimedijske prezentacije) nudijo teoretične osnove za vaje in seminarske naloge; • V sklopu seminarja se izvajajo skupinske seminarske naloge (do max 4 člani skupine), ki so obogatene z ustreznim raziskovalnim in praktičnim delom; • V okviru predmeta se izvajajo strokovni obiski podjetij; namen obiskov je spoznavanje različnih vrst organiziranosti proizvodnega procesa; • V okviru predmeta se izvede eno vabljeno predavanje strokovnjaka iz industrije.	• Lectures and seminar work. • Lectures (multimedia presentations) provide theoretical basis for exercises and seminar work; • Within the seminar, group seminar work (up to max 4 members of the group) is carried out, enriched with appropriate research and practical work; • 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; • Within the course, one invited lecture by an expert from the industry is carried out.

Načini ocenjevanja:	Delež/Weight	Assessment:
Pisni izpit	70,00 %	Written exam

Seminarska naloga	30,00 %	Seminar work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

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, SIMONČIČ, 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, ÇELIK, 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, SIMONČIČ, 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].

QUALITY MANAGEMENT

Predmet:	Vodenje kakovosti
Course title:	Quality management
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068712
Koda učne enote na članici/UL Member course code:	11311

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

Nosilec predmeta/Lecturer:	Andrej Demšar, Marica Starešinič
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 selecting the course.

Vsebina:	Content (Syllabus outline):
• 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 certificiranje sistemov kakovosti po standardu ISO 9001; • 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); • Ekonomika kakovosti;	• 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 standard requirements. Certification of quality systems according to ISO 9001; • 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. • Economics of quality.

• Celovito vodenje kakovosti; • Samoocenjevanje in nagrade za kakovost.	• Total quality management. • Self-evaluation and awards for quality.

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:	**Objectives and competences:**
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**: • 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:	**Intended learning outcomes:**
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; • Pozna in razume pomen standardov za sisteme vodenja kakovosti; • Razume različne koncepte vodenja kakovosti; • Pozna in razume osnovne metode statistične analize; • Razume pomen kontrolnih kart kot orodja za odkrivanje neskladnosti v procesih; • Razume metode samoocenjevanja in nagrade za poslovno odličnost.	**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; • Quality management standardisation; different concepts of quality management; • Basic statistical methods for data analysis; • Control charts as a tool for discovering discrepancies in processes; • Self-evaluation and awards for business excellency.

Metode poučevanja in učenja:	Learning and teaching methods:
Predavanja in seminarsko delo.	Lectures and seminar work.

Načini ocenjevanja:	Delež/Weight	Assessment:
Pisni izpit	50,00 %	Written exam
Seminarska naloga	30,00 %	Seminar paper
Predstavitev seminarske naloge	20,00 %	Presentation of seminar paper

Ocenjevalna lestvica:	Grading system:
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

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];
2. DEMŠAR, Andrej, ŽNIDARČIČ, Dragan, GREGOR-SVETEC, Diana. Impact of UV radiation on the physical properties of polypropylene floating row covers. African journal of biotechnology, ISSN 1684-5315, 2011, vol. 10, no. 41, str. 7998-8006. [COBISS.SI-ID 6760057];
3. DEMŠAR, Andrej, BUKOŠEK, Vili, KLJUN, Alenka. Dynamic mechanical analysis of nylon 66 cord yarns. Fibres & textiles in Eastern Europe, ISSN 1230-3666, 2010, vol. 18, no. 4 (81), str. 29-34, ilustr. [COBISS.SI-ID 2426480]

SPECIAL CLOTHING PATTERNS

Predmet:	Specialni kroji oblačil
Course title:	Special clothing patterns
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0642821

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

Nosilec predmeta/Lecturer:	Živa Zupin

Vrsta predmeta/Course type:	izbirni/elective

Jeziki/Languages:		
	Predavanja/Lectures:	Angleščina, Slovenščina
	Vaje/Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Vpis v letnik študija in izbira predmeta. Končni izpit pomeni opravljen izpit in oddaja seminarske naloge in njena predstavitev.	Enrollment in the academic year and choice of subject. The final examination consists of passing the exam and submitting a seminar paper and its presentation.

Vsebina:	Content (Syllabus outline):
Študenti pridobijo temeljno teoretično in praktično znanje s področja razvoja specialnih krojev oblačil, ki ga praktično uporabijo v seminarski nalogi.	Students acquire the basic theoretical and practical knowledge in the field of development of special clothing patterns, which they apply practically in a seminar work.

Temeljna literatura in viri/Readings:

- STIEGLER, M. and KROLOPP, L. *Schnittkonstruktionen für Rocke und Hosen*. 23. Aufl. Munich: Rundschau-Verlag Otto G. Königer, 1996.
- STIEGLER, M. *Schnittkonstruktionen für Kleider und Blusen*. 22. Aufl. Munich: Rundschau-Verlag Otto G. Königer, 1997.
- STIEGLER, M. and KROLOPP, L. *Schnittkonstruktionen für Jacken und Mantel*. 24. Aufl. Munich: Rundschau-Verlag Otto G. Königer, 1994.
- HAKA-*Schnittkonstruktionen nach M. Müller & Sohn*. Munich: Rundschau-Verlag Otto G. Königer, 2000.
- ALDRICH, V. *Metric Pattern Cutting*. 3rd edition. Oxford [etc.]: Blackwell Science, 2003.
- SATO, H. Drape Drape. London: Laurence King Publishing, 2012.
- SATO, H. Drape Drape 2. London: Laurence King Publishing, 2012.
- SATO, H. Drape Drape 3. London: Laurence King Publishing, 2013.
- NAKAMICHI, T. Pattern Magic. London: Laurence King Publishing, 2005.
- NAKAMICHI, T. Pattern Magic volume 2. London: Laurence King Publishing, 2007.
- NAKAMICHI, T. Pattern Magic: Stretch Fabrics. London: Laurence King Publishing, 2010.
- HIRAIWA, N. Shape Shape 2. United States: Interweave Press, 2013.
- LIECHTY, E., RASBAND, J. and POTTBERG-STEINECKERT, D. Fitting Pattern Alteration, 2nd edition. New York: Fairchild Books, 2010.

Literatura je dosegljiva v knjižnici Oddelka za tekstilstvo, NTF./Literature is available in the library of the Department of Textiles library.

Cilji in kompetence:	Objectives and competences:
Študent nadgradi teoretično in praktično znanje s področja razvoja krojev oblačil glede na izbiro vsebine predmeta Projektno delo; vsebine diplomskega dela ali vsebine, jih bo študent potreboval pri zaposlitvi v izbranem oblačilnem podjetju.	The student expands theoretical and practical knowledge in the area of apparel pattern development in light of the student's choice of course project work content; thesis content; or content that the student will need upon employment in the selected apparel company.

Predvideni študijski rezultati:	Intended learning outcomes:
• Nadgradnja vsebin razvoja osnovnih krojev oblačil z nadgradnjo modelacij in gradacij krojev oblačil. • Samostojna izvedba seminarske naloge s področja razvoja osnovnih krojev, modelacij ali gradacij krojev oblačil.	• Upgrading the development of basic garment pattern blocks; upgrading modeling and grading of garment patterns. • Independently conducted seminar work in the field of basic garment pattern block development, modeling or grading of garment patterns.

Metode poučevanja in učenja:	Learning and teaching methods:
Predavanja, seminar, projektno delo.	Lectures, Seminar work, Project work.

Načini ocenjevanja:	Delež/Weight	Assessment:
Pisna predstavitev seminarske naloge/projektnega dela.	50,00 %	Written presentation of the seminar work/project work.
Ustna predstavitev seminarske naloge/projektnega dela.	50,00 %	Oral presentation of the seminar work/project work.

Ocenjevalna lestvica:	Grading system:
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. ZUPIN, Živa, KNIFIC, Karmen, PAVKO-ČUDEN, Alenka. Comfort properties of functional double bed knitted fabric for firefighters underwear. Tekstil ve konfeksiyon dergisi : journal of textile and apparel. 2023, vol. 33, no. 3, str. 249-261. ISSN 1300-3356. https://dergipark.org.tr/en/download/article-file/2224036, DOI: 10.32710/tekstilvekonfeksiyon.1065942.
2. . ZUPIN, Živa, DIMITROVSKI, Krste, HLADNIK, Aleš, KOSTAJNŠEK, Klara. Elongation properties of woven fabrics with incorporated PBT yarns. The journal of The Textile Institute. 2022, vol. 113, no. 5, str. 846-856, ilustr. ISSN 0040-5000. https://www.tandfonline.com/doi/full/10.1080/00405000.2021.1907971, https://repozitorij.uni-lj.si/IzpisGradiva.php?id=141246, DOI: 10.1080/00405000.2021.1907971
3. ZUPIN, Živa, CERAR, Urša, PODBEVŠEK, Tanja. Garment design according to zero waste design principle. V: ÜN, Çağrı (ur.), KIDIRYUZ, Merve (ur.). Full texts book : Cukurova 9th International Scientific Researches Conference : October 9-11, 2022, Adana, Turkey. Cukurova 9th International Scientific Researches Conference, October 9-11, 2022, Adana, Turkey. Ankara: IKSAD Publishing House, 2022. Str. 1721-1729. ISBN 978-625-8246-28-5. https://en.iksadkongre.net/_files/ugd/262ebf_712087d19a0843b786e9a55dd73c035e.pdf.
4. ZUPIN, Živa, HLADNIK, Aleš, DIMITROVSKI, Krste. Prediction of one-layer woven fabrics air permeability using porosity parameters. *Textile research journal*. 2012, vol. 82, no. 2, str. 117-128, ilustr. ISSN 0040-5175.
5. ZUPIN, Živa. Computer aided fabrics patterning = [Računalniško podprto vzorčenje tkanin]. V: CVIKL, Nives (ur.), HREN BRVAR, Maja (ur.). Tekstil, oblačilna kultura in moda = Textile, the culture of clothing and fashion : Museoeurope : the collected volume of the symposium 18.-19. 10. 2019, (Zbirka Museoeurope, 6). Maribor: Pokrajinski muzej: = Regional Museum. 2019, str. 23-33, ilustr.

SPINNING

Predmet:	Predenje
Course title:	Spinning
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	1. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068731
Koda učne enote na članici/UL Member course code:	11039

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

Nosilec predmeta/Lecturer:	Dunja Šajn Gorjanc
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 letnik študija.	Enrolment into study year.

Vsebina:	**Content (Syllabus outline):**
• Predilne lastnosti različnih vrst prediv; • Struktura in lastnosti enojnih, združenih, sukanih, oplaščenih 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.	• 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; • The analysis of the impact of the spinning process on the properties, productivity and cost of spinning yarn.

Temeljna literatura in viri/Readings:

- NIKOLIĆ, M., in PERIĆ, P. Teorija in tehnologija predenja. Del 1. Ljubljana : FNT VTOZD Tekstilna tehnologija, 1990.

- ŠAJN GORJANC, Dunja. *Preje : študijsko gradivo*. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, Katedra za tekstilno in oblačilno inženirstvo, [2019].
- ŠAJN GORJANC, D. Načrtovanje izdelave predivne preje [Elektronski vir] : študijsko gradivo, 2014.

Cilji in kompetence:	**Objectives and competences:**
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**: • 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:	**Intended learning outcomes:**
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.	**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:	**Learning and teaching methods:**
Predavanja in vaje.	Lectures and tutorial work.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni ali ustni izpit	50,00 %	Written or oral exam
Pisni ali ustni izpit iz vaj	50,00 %	Tutorial work exam

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. POZDEREC, Miha, ŠAJN GORJANC, Dunja. Permeability properties of woven fabrics containing two-ply fancy yarns = Permeabilitatea ţesăturilor ce conţin fire fantezie dublu răsucite. *Industria textilæa*. 2021, vol. 72, no. 2, str. 156-167.
2. ŠAJN GORJANC, Dunja, SUKIČ, Neža. Determination of optimum twist equation for the long Staple combed cotton ring-spun yarn. *Fibers*, ISSN 2079-6439, 21 Sep. 2020, vol. 8, iss. 9, article 59, str. 1-18.
3. ŠAJN GORJANC, Dunja. The functionality of woven fabric from air-jet yarn from the mixture of CO/PA and CO/PES fibres in the weft direction. *The journal of The Textile Institute*, ISSN 0040-5000, 2019, vol. 110, no. 5, str. 680-689.

4. ŠAJN GORJANC, Dunja, GLAŽAR, Dominika. The influence of air-jet and vortex yarn on functionality of woven fabric = Influenţa firelor filate cu jet de aer şi vortex asupra funcţionalităţii ţesăturii. *Industria textilæa*, ISSN 1222-5347, 2018, vol. 69, no. 2, str. 87-95.
5. ŠAJN GORJANC, Dunja, ZUPIN, Živa. Responses of fabric from lyocell/natural bamboo yarn to loading. *The journal of The Textile Institute*, ISSN 0040-5000, 2017, vol. 108, no. 10, str. 1707-171.

STATISTICS

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068742
Koda učne enote na članici/UL Member course code:	10885

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

Nosilec predmeta/Lecturer:	Stanislav Praček
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 letnik študija.	Enrollment in academic year with an examination in mathematics.

Vsebina:	**Content (Syllabus outline):**
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; • Pogojna verjetnost. **Teoretične porazdelitve**: • Normalna porazdelitev; • t-porazdelitev; • Binomska porazdelitev; • Poissonova porazdelitev; • F-porazdelitev. **Vzorčenje**:	**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; • Conditional probability. **Theoretical distributions:** • Normal distribution; • t-Distribution; • Binomial distribution; • Poisson distribution; • F-distribution. Sampling:

• Statistično zaupanje; • Statistične količine (korelacija, korelacijski koeficient,...); • Linearna regresija in regresijska premica.	• Statistical confidence; • Statistical quantities (correlation coefficient of correlation, ...); • Linear regression and the regression line.

Temeljna literatura in viri/Readings:

- GRAF, U., HENING, H.J., WILRICH P.T.: Statistische Methoden bei Textilen Untersuchungen, Heidelberg, Springer Verlag 1974;
- SACHS, L.: Angewandte Statistik, Anwendung statistischer Methoden, (7.izd.) Berlin, Springer Verlag 1999;
- JOHNSON, R.A., Miller & Freund's Probability and Statistics for Engenneers (6.izd.) Prentice Hall, 1999;
- WEISS, N.A.: Elementary statistics (4. izd.) Addison Wesley Longman, 1999;
- HLADNIK, Mičan. Verjetnost in statistika (2002);
- PRAČEK Stanislav, Statistika, UNI-LJ,NTF, OT (2015).

Cilji in kompetence:	**Objectives and competences:**
Cilj in namen predmeta je naučiti študente osnove statistike. **Predmetno specifične kompetence**: • Študent pozna in zna uporabljati metode zbiranja, urejevanja, prikazovanja ter vrednotenja rezultatov meritev na objektiven in deduktiven način; • Pozna strokovno izrazoslovje statistike in statistične računske metode vrednotenja ene, dveh ali več temeljnih skupnosti. • Prav tako pozna osnovne teoretičnih modelnih porazdelitev, ki predstavljajo splošno temeljno znanje za deduktivno statistično analizo; • Predmet navaja študente na kritično presojo razultatov 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.	**The aim and purpose** of the course is to teach students the fundamentals of statistics. Subject-specific competencies: • 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; • The student knows the terminology and statistical calculation method of valuation of one, two or more population. • He is also aware of the underlying theoretical model distribution representing the general basic knowledge of deductive statistical analysis; • 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.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Osnovno znanje in razumevanje statistike in statistične deduktivne analize. • Poznavanje različnih metod statističnega vrednotenja meritev ene, dveh ali več temeljnih skupnosti. • Sposobnost matematično rešiti naloge razlik dveh srednjih vrednosti, izračunati linearne korelacije dveh ali večih spremenljivk, in z regresijsko analizo postaviti linearni model med dvema spremenljivkama. • 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).	**Knowledge and understanding**: • Basic knowledge and understanding of statistics and statistical deductive analysis. • Knowing the different methods of statistical evaluation of measurements of one, two or more population. • Ability to solve mathematical exams, the difference of two averages to calculate the linear correlation of two or more variables, and by a regression analysis to put a linear model between the two variables. • 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).

Metode poučevanja in učenja:	**Learning and teaching methods:**

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.	**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 sxams 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

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

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://mcajournal.org/specialissuevolume15_5/14.pdf. [COBISS.SI-ID 2551664];
4. PRAČEK, Stanislav, SLUGA, Franci. Matematical 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.mcajournal.org/specialissuevolume15_5/15.pdf. [COBISS.SI-ID 2551920].

TECHNOLOGICAL DESIGN OF TEXTILES AND CLOTHING

Predmet:	Tehnološko oblikovanje tekstilij in oblačil
Course title:	Technological design of textiles and clothing
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code: 0642820

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

Nosilec predmeta/Lecturer: Alenka Pavko Čuden

Vrsta predmeta/Course type: izbirni/elective

Jeziki/Languages:

Predavanja/Lectures:	Angleščina, Slovenščina
Vaje/Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
Vpis v letnik študija. Za pristop h končnemu izpitu je pogoj opravljen seminar.	Enrolment into the study year. For the final exam, a completed seminar work is a prerequisite.

Vsebina:	Content (Syllabus outline):
Predavanja: • Uvod: pomen kreativnosti pri razvoju novih izdelkov, kreativnost in inženirsko oblikovanje, inženirsko načrtovanje; omejitve in nasprotja v oblikovanju in tehnologiji; • Nov izdelek, faze razvoja novega izdelka, sinergija oblike in funkcije izdelka, značilnosti uspešnih tekstilnih in oblačilnih izdelkov; • Tehnološke omejitve pri oblikovanju in načrtovanju tekstilij in oblačil; • Časovno načrtovanje procesov priprave in izdelave prototipne in tržne kolekcije tekstilij in oblačil; • Tehnološka dokumentacija za tekstilije/oblačila • Ekonomika izdelka in procesa izdelave; • Informacijsko-komunikacijski sistemi in oprema za razvoj, optimiranje in proizvodnjo tekstilij in oblačil. **Seminar**:	**Lectures**: • Introduction: the importance of creativity in new product development, creativity and design engineering, technical planning; limits and contradictions in design and technology; • New product, phases of new product development, synergy of product form and function, characteristics of successful textile and clothing products; • Technological limitations in textile and clothing design and planning; • Timing of processes to prepare and produce prototype and market collection of textiles and clothing; • Technological documentation for textiles/clothing. • Economic aspects of the product and manufacturing process;

• Študij primerov inženirskega oblikovanja tekstilij in oblačil.	• Information and communication systems and equipment for the development, optimization and production of textiles and clothing. **Seminar**: • Case studies of textile and clothing engineering design.

Temeljna literatura in viri/Readings:

- QUINN, B. Textile futures: fashion, dsign an technology. 2010, Berg, Oxford, 307 str.;
- COLCHESTER, C. Textiles today: a global survey of trends and transitions, 2007, Thames & Hudson, London, 208 str.;
- KUMAR, B.(ed.) & TKAKUR, S. (ed,). Textiles for advanced applications. 2017, INTECH, Rijeka, 421. str.;
- PEČJAK, V. Pot do novih idej : Tehnike kreativnega mišljenja. 2001, New Moment, No. 16, Ljubljana, 176 str.;
- NORMAN, D. Emotional design. 2005, Basic books, New York, 272 str.

Cilji in kompetence:	**Objectives and competences:**
• Razumevanje pomena sinergije tehnologije in oblikovanja pri oblikovanju in načrtovanju tekstilij in oblačil ter razumevanje odnosa med obliko in funkcijo izdelka; • Razumevanja pomena poznavanja tehnoloških omejitev pri oblikovanju in načrtovanju tekstilij in oblačil; • Spoznavanje metod in tehnik zbiranja idej in pospeševanja kreativnosti na področju oblikovanja in načrtovanja tekstilij in oblačil; • Poznavanje principov in časovnega načrtovanja procesov priprave in izdelave prototipne in tržne kolekcije tekstilij in oblačil; • Poznavanje pomena tehnološke dokumentacije za tekstilije/oblačila ter povezanosti posameznih elementov z ekonomiko izdelka in procesa izdelave; • Poznavanje principov informacijsko-komunikacijskih sistemov in opreme pri razvoju, optimiranju in izdelavi tekstilij in oblačil.	• Understanding the importance of the synergy of technology and design in the design and planning of textiles and clothing and understanding the relationship between product design and function; • Understanding the importance of knowing technological limitations in textile and clothing design and planning; • Getting to know the methods and techniques for gathering ideas and encouraging creativity in the design and planning of textiles and clothing; • Knowing the principles and timing of the processes for preparing and producing prototypes and market collections of textiles and clothing; • Knowledge of the importance of technological documentation for textiles/clothing and the relationship of each element to the economics of the product and the manufacturing process; • Knowledge of the principles of information and communication systems and equipment in the development, optimization and production of textiles and clothing.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• Sposobnost kreativnega inženirskega razmišljanja s ciljem razvoja inovativnih tekstilij in oblačil; • Sposobnost vodenja procesa načrtovanja in izdelave inovativnih tekstilij in oblačil.	• The ability to think creatively with the aim of developing innovative textiles and clothing; • The ability to lead the process of design and manufacture of innovative textiles and clothing.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja, podprta z interaktivnimi predstavitvami; • Aktivno sodelovanje v razpravah na določeno temo; • Samostojna priprava seminarske naloge z javno predstavitvijo.	• Lectures supported by interactive presentations; • Active participation in discussions on a specific topic; • Independent preparation of a seminar paper with a public presentation.

Načini ocenjevanja:	Delež/Weight	Assessment:
Pisni/ustni izpit	50,00 %	Written/oral exam
Seminarska naloga	50,00 %	Seminar work

Ocenjevalna lestvica:	Grading system:
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. KODŽOMAN, Duje, HLADNIK, Aleš, PAVKO-ČUDEN, Alenka, ČOK, Vanja. Exploring color attractiveness and its relevance to fashion. *Color research and application*. 28 June 2021, vol. , no. , 12 str. ISSN 0361-2317. https://onlinelibrary.wiley.com/doi/10.1002/col.22705, DOI: 10.1002/col.22705.
2. PAVKO-ČUDEN, Alenka. Recent developments in knitting technology. V: MAITY, Subhankar (ur.), et al. Advanced knitting technology. [Cambridge]: Woodhead publishing, 2021. Str. [13]-66.
3. SALOPEK ČUBRIĆ, Ivana, ČUBRIĆ, Goran, POTOČIĆ MATKOVIĆ, Vesna Marija, PAVKO-ČUDEN, Alenka. The comfort of knitted fabrics: interaction of sportswear and athlete's body. Communications in development and assembling of textile products. 2021, vol. 2, no. 1, str. 70-79, https://journals.qucosa.de/cdatp/article/view/38/31.
4. ŠTEMBERGER, Marjanca, MUHOVIČ, Jožef, PAVKO-ČUDEN, Alenka. Struktura stila v oblikovanju tekstilij in oblačil. Annales : anali za istrske in mediteranske študije. Series historia et sociologia. 2018, letn. 28, št. 2, str. 255-268, http://zdjp.si/annales-series-historia-et-sociologia-28-2018-2/, DOI: 10.19233/ASHS.2018.17.
5. PAVKO-ČUDEN, Alenka, RANT, Darja. Multifunctional foldable knitted structures : fundamentals, advances and applications. V: KUMAR, Bipin (ur.), THAKUR, Suman (ur.). Textiles for advanced applications. Rijeka: InTech, 2017. Str. [55]-84, https://www.intechopen.com/books/textiles-for-advanced-applications/multifunctional-foldable-knitted-structures-fundamentals-advances-and-applications.

TESTING OF TEXTILES

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068740
Koda učne enote na članici/UL Member course code:	10057

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

Nosilec predmeta/Lecturer:	Andrej Demšar
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 letnik študija. Za pristop h končnemu izpitu je pogoj opravljen seminar, opravljena predstavitev seminarja in pozitivno ocenjen kolokvij iz laboratorijskih vaj.	Enrolment into study year. The prerequisit for applying to the final exam is passed seminar, a presentation of self-study and a positively assessed colloquium in laboratory exercises.

Vsebina:	**Content (Syllabus outline):**
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; • 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;	**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; • Yarn labeling and numeration, yarn testing - determining linear density, twist, friction, voluminosity, eveness; • 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;

• Obnašanje tekstilij pod vplivom natezne sile, določanje elastičnih in viskoelastičnih lastnosti, elastične povratnosti; • Dimenzijska stabilnost in označevanje tekstilnih izdelkov. **Vodeno samostojno učenje**: • Na podlagi člankov in druge literature študent poglobljeno predela in predstavi del učne snovi. **Seminar**: • Predstavitev določanja neke lastnosti tekstilije z uporabo standardizirane metode. **Vaje**: • 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.	• Behavior of textiles under the influence of tensile force, determination of elastic and viscoelastic properties, elastic recovery; • Dimensional stability and labeling of textile products. **Guided Self-Learning**: • On the basis of published articles and other literature, the student studies and presents a part of the teaching material. **Seminar**: • Presentation of testing a selected properties of a textile material using a standardized method. **Exercises**: • Measuring textile properties - length, linear densty 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 od interior fabrics, pilling resistance, electrostaticity of fabrics.

Temeljna literatura in viri/Readings:

1. MORTON, W.E. & HEARLE, J.W.S. Physical properties of textile fibres. Manchaster : The Textile Institute, 1997;
2. COLLIER, B.J. & EPPS, H.H. Textile testing and analysis. Upper Saddle River : Merril, 1999;
3. SAVILLE, B. P. Physical testing of textiles. Cambridge : Woodhead publishing Ltd and The Textile Institute, 2000;
4. GREGOR-SVETEC, D. Temeljne preiskave tekstilij. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2010.

Cilji in kompetence:	**Objectives and competences:**
Cilji: • Študenti se seznanijo z osnovnimi fizikalnimi in kemičnimi tekstilno tehnološkimi metodami preskušanja tekstilij ter obenem spoznajo lastnosti tekstilij od vlaken do končnih izdelkov. • 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. **Predmetnospecifične kompetence**: • Poznavanje in razumevanje utemeljitve in razvoja tekstilne stroke na podlagi poznavanja razvoja preiskovalnih metod ter izpopolnjevanja kontrole tehnoloških postopkov izdelave tekstilij; • Sposobnost za reševanje konkretnih delovnih problemov na podlagi poznavanja heterogenosti tekstilnih materialov in njihovih lastnosti z obvladovanjem določanja lastnosti tekstilij; • Sposobnost povezovanja znanja z različnih področij in aplikacij na podlagi opredelitve lastnosti vlaken in iz njih izdelanih izdelkov z uporabo različnih metod preiskav;	**Objectives**: • 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. • 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. **Competencies**: • 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; • 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; • Ability to integrate knowledge from different fields and applications based on defining the

• Sposobnost povezovanja znanja z različnih področij in aplikacij kar vodi do optimiranja postopkov izdelave tekstilij in doseganje večje kakovosti končnih izdelkov; • Razumevanje splošne strukture tekstilne stroke ter povezanosti med njenimi poddisciplinami je povezano s poznavanjem lastnosti tekstilij in njihovo karakterizacijo, sposobnostjo interpretacije rezultatov analize; • Razumevanje in uporaba standardiziranih preskuševalnih metod pri karakterizaciji surovin, tekstilnih polizdelkov in končnih izdelkov; • Razumevanje uporabe statističnega vrednotenja meritev in rezultatov tekstilnih preiskav; • Razvoj veščin in spretnosti pri kontroli in analiziranju sodobnih zahtev izdelave tekstilij in karakterizaciji tekstilnih izdelkov; • Uporaba informacijsko-komunikacijske tehnologije in sistemov pri karakterizaciji tekstilij.	properties of fibers and products manufactured using differenttesting methods; • 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; • 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; • Understanding and using standardized testing methods in the characterization of raw materials, textile semi-finished products and finished products; • Understanding the use of statistical evaluation of measurements and the results of textile investigations; • Development of skills and competences in controlling and analyzing the modern requirements of textile production and the characterization of textile products; • Use of information-communication technology and systems in the characterization of textiles.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • 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 meritev in jih podati, pozna vrste poškodb in metode njihovega določanja, ve, kako se označujejo tekstilije; • 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. **Uporaba**: • 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.	**Knowledge and understanding**: • 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 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; • 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. **Application**: • 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.

Metode poučevanja in učenja:	**Learning and teaching methods:**

Interaktivna predavanja, seminar s predstavitvijo, aktivno sodelovanje pri predstavitvah seminarjev, interaktivna ali panelna predstavitev vodenega samostojnega dela, samostojno laboratorijsko delo, strokovne ekskurzije, zbiranje literature in študij literature v knjižnici.	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:	**Delež/Weight**	**Assessment:**
Ustni/pisni izpit, kolokvij iz laboratorijskih vaj, poročilo o opravljenih laboratorijskih vajah, predstavitev samostojnega učenja.	100,00 %	Oral/written examination, colloquium from laboratory exercises, report on laboratory exercises, presentation of self-study

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

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, SIMONČIČ, 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, ÇELIK, 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, SIMONČIČ, 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].

TEXTILE AND CLOTHING TRADICTION

Predmet:	Tekstilna in oblačilna tradicija
Course title:	Textile and clothing tradiction
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik, 3. letnik	2. semester	izbirni
Tekstilno in oblačilno inženirstvo, prva stopnja, visokošolski strokovni	Ni členitve (študijski program)	3. letnik	2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0068373
Koda učne enote na članici/UL Member course code:	11149

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

Nosilec predmeta/Lecturer:	Alenka Pavko Čuden
Vrsta predmeta/Course type:	Izbirni / Elective

Jeziki/Languages:	Predavanja/Lectures:	Slovenščina
	Vaje/Tutorial:	Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	Prerequisites:
vpis v letnik študija in izbira predmeta.	Enrolment into study year and choice of the course.

Vsebina:	Content (Syllabus outline):
– izvor in pomen tekstilij in oblačil, funkcije tekstilij in oblačil, vrste in skupine tekstilij in oblačil – zgodovinski razvoj tekstilij in oblačil – zgodovinska povezanost tekstilne in oblačilne tehnologije ter tekstilne umetnosti/oblikovanja – Evropska tekstilna in oblačilna tradicija – Slovenska tekstilna in oblačilna tradicija (obrt, industrija, oblikovanje)	– origin and significance of textiles and clothing, function of textiles and clothing, types and categories of textiles and clothing – historical development of textiles and clothing – historical interaction of textile and clothing technology and textile arts/ esign – European textile and clothing tradition – Slovenian textile and clothing tradition (trade, industry, design)

Temeljna literatura in viri/Readings:

- PUŠNIK, M. FAJT, E. (ur). Moda in Kultura oblačenja. Ljubljana, 2015
- STANKOVIČ ELESINI, U., CERAR, E., PAVKO-ČUDEN, A. Tekstilne poti po ljubljanskih ulicah. Ljubljana: Oddelek za tekstilstvo, Naravoslovnotehniška fakulteta: Mestna občina, 2014
- KRESAL, F. Tekstilna industrija v Sloveniji 1918–1941. Ljubljana : Založba Borec, 1976
- BOUCHER, F. A history of costume in the West. London, Thames and Hudson, 1997

- Pisani, Lea, Ravni oblačenja = Dress code : s posebnimi poglavji o gostovanju na televiziji, pogovoru za službo, pogrebni slovesnosti, poroki, maturantskem plesu in šoli : novo: kako oblikovati kodeks za sproščeno oblačenje v poslovnem svetu. Ljubljana : L. Pisani, 2020
- Sadar Almira. O modi : izbrana poglavja o sodobni modi : univerzitetni učbenik za predmet Uvod v oblikovanje oblačil, Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2011

Cilji in kompetence:	**Objectives and competences:**
Cilji: Študenti spoznajo zgodovino razvoja tekstilij in oblačil. Razumejo povezavo med razvojem znanosti in tehnologije, tekstilno in oblačilno tehnologijo ter umetnostjo in oblikovanjem. Kompetence: – poznavanje pomena tekstilne in oblačilne tradicije in dediščine – poznavanje slovenske tekstilne in oblačilne tradicije v odnosu do evropske in globalne	Objectives: Students learn about the history of the textiles and clothing development of. They understand the link between the development of science and technology, textile and clothing technology and art and design. Competencies: - understanding of the importance of textile and clothing tradition and heritage - knowledge of the Slovenian textile and clothing tradition in relation to the European and global tradition

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: – poznavanje zgodovine razvoja tekstilij in oblačil – poznavanje slovenske tekstilne in oblačilne tradicije: obrti, industrije in oblikovanja	Knowledge and understanding: - knowledge of the history of development of textiles and clothing - knowledge of the Slovenian textile and clothing tradition: crafts, industry and design

Metode poučevanja in učenja:	**Learning and teaching methods:**
– predavanja – seminarsko delo	– lectures – seminar work

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
– pisni/ustni izpit	70,00 %	– written/oral exam
– seminarsko delo	30,00 %	– seminar work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

- ŠTEMBERGER, M., MUHOVIČ, J., PAVKO-ČUDEN, A. Struktura stila v oblikovanju tekstilij in oblačil. Annales : anali za istrske in mediteranske študije, Series historia et sociologia, ISSN 1408-5348, 2018, letn. 28, št. 2, str. 255-268;
- STANKOVIČ ELESINI, U., CERAR, E., PAVKO-ČUDEN, A. Tekstilne poti po ljubljanskih ulicah. Ljubljana: Oddelek za tekstilstvo, Naravoslovnotehniška fakulteta: Mestna občina, 2014
- PLAJH L., PAVKO-ČUDEN, A., et al. Digital printing of blue-printed textile exhibits replicas, *Industria Textila*, 2015, vol. 66, No 2, p. 67-73
- TODOROVIĆ, T., TOPORIŠIČ, T., PAVKO-ČUDEN, A. Clothes and costumes as form of nonverbal communication = Oblačila in kostumi kot oblika neverbalne komunikacije. *Tekstilec*, 2014, vol. 57, št. 4, str. 321-333

TEXTILE CARE 1

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	3. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068753
Koda učne enote na članici/UL Member course code:	11295

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

Nosilec predmeta/Lecturer:	Barbara Simončič, Brigita Tomšič
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 letnik študija. Pogoj za pristop k pisnemu izpitu je pozitivna ocena poročila laboratorijskih vaj ter pozitivno opravljena javna predstavitev seminarskega dela.	Enrolment into the study year. Prerequisite for approach to written exam are positively passed laboratory practice report and public presentation of a coursework.

Vsebina:	Content (Syllabus outline):
Predavanja: • Oznake za nego tekstilij v sladu 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; • Detaširna sredstva in detaširanje; Topila za kemično čiščenje; Postopki profesionalne nege (kemično in mokro čiščenje); • Zaključna dela; Napake in poškodbe tekstilij pri kemičnem in mokrem čiščenju; • Ekološki vidiki nege tekstilij; • Standardi za vrednotenje kakovostne izvedbe postopka nege tekstilij.	**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; • Spotting agents and spotting; Solvents for dry cleaning; Professional cleaning processes (dry cleaning, wet cleaning); • Final work; Faults and damages of the textiles after dry and wet cleaning; • The environmental aspects of textile care; • Textile care standards for the evaluation of quality performed processes.

Seminarsko delo: • Izvedbeni načrt postopka nege za izbrano tekstilijo, glede na njeno surovinsko sestavo, konstrukcijske parametre, postopek plemenitenja, vrsto umazanije in zahtev higieničnosti tekstilije. • Seminarsko delo se javno prestavi. **Laboratorijske vaje**: • Proučevanje vpliva različnih dejavnikov pri odstranjevanju gospodinjskih madežev ali standardnih umazanij s tekstilije s postopkom pranja	**Coursework**: • 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. • Coursework is publicly presented. **Laboratory practice**: • A study of the influence of different factors at removal of household stains or standard soils from textiles during the laundering process.

Temeljna literatura in viri/Readings:

1. SMULDERS, E. et al., Laundry Detergents, Wiley-VCH Verlag GmbH, Weinheim, 2002.
2. SOLJAČIĆ, I. in PUŠIĆ, T. Njega tekstila Čišćenje u vodenim medijima, Zagreb : Sveučilište u Zagrebu, Tekstilno-tehnološki fakultet, 2005.
3. ROSEN, M. J. Surfactants and Interfacial Phenomena, 2nd ed. New York; Singapore : John Wiley & Sons, 1989.
4. DATYNER, A. Surfactants in textile processing. New York; Basel : Marcel Dekker, 1983.
5. ŠOSTAR-TURK, S., in FIJAN, S. Nega tekstilij in oblačil : skripta. Maribor : Fakulteta za strojništvo, 2000.
6. 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/.

Dodatna literatura in viri/Supplemental readings:

7. JOHANSSON, I., SOMASUNDARAN, P. (Editors) Handbook for Cleaning/Decontamination of Surfaces, Elsevier, 2007.

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:	**Objectives and competences:**
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; • Ssposobnost načrtovanja postopka nege ter kritična presoja kakovostne izvedbe le-tega; • Sposobnost hitrega odziva na nove zakonske predpise glede okoljskih zahtev procesov nege; • Sposobnost hitrega odziva na nove postopke in tehnologije nege in njihov prenos v prakso; • Ekološki vidiki nege z vidika trajnosti; • Sposobnost kritičnega presojanja pri preoblikovanju ali vpeljavi novih postopkov nege z vidika zagotavljanja kakovosti postopka nege in higieničnosti tekstilije;	**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; • The ability to quickly respond to new legal regulations according to the environmental requirements of care processes; • The ability to quickly respond to new processes and technologies of textile care and then to quickly transfer them into practice;

• Sposobnost strokovnega svetovanja pri izvajanju sodobnih postopkov nege tekstilij.	• To understand the ecological aspects of the care process from the perspective of sustainability; • 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; • The ability to provide expert advice when performing state of the art textile care processes.

Predvideni študijski rezultati:	**Intended learning outcomes:**
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.	• 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:	**Learning and teaching methods:**
Predavanje, seminarsko delo, laboratorijske vaje, ekskurzija.	Lectures, coursework, laboratory practices, excursion.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Izpit	50,00 %	Exam
Pisno poročilo laboratorijskih vaj	25,00 %	Written report of laboratory practices
Seminarsko delo	25,00 %	Coursework

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

Barbara Simončič

1. ŠTULAR, Danaja, SAVIO, Elisa, SIMONČIČ, Barbara, ŠOBAK, Matic, JERMAN, Ivan, POLJANŠEK, Ida, FERRI, Ada, TOMŠIČ, Brigita. Multifunctional antibacterial and ultraviolet protective cotton cellulose developed by in situ biosynthesis of silver nanoparticles into a polysiloxane matrix mediated by sumac leaf extract. *Applied Surface Science,* 2021, vol. 563, str. 1-12. DOI: 10.1016/j.apsusc.2021.150361. [COBISS.SI-ID 67347971].
2. VASILJEVIĆ, Jelena, SIMONČIČ, Barbara, KERT, Mateja. The influence of a surfactant's structure and the mode of its action during reactive wool dyeing. Tekstilec, 2015, vol. 58, no. 4, str. 301-313. [COBISS.SI-ID 3212144].
3. DROL, Petra, KERT, Mateja, SIMONČIČ, Barbara, HLADNIK, Aleš. Vrednotenje vpliva različnih dejavnikov pri odstranjevanju standardnih umazanij z bombažnih tkanin z večfaktorsko analizo variance. Tekstilec, 2012, letn. 55, št. 3, str. 194-205. ISSN 0351-3386. [COBISS.SI-ID 2785648].
4. ILEC, Eva, SIMONČIČ, Barbara. Vpliv tenzidov na lastnosti tekstilij iz naravnih vlaken. Argo : časopis slovenskih muzejev. 2010, 53, [št.] 2, str. 38-48. ISSN 0570-8869. [COBISS.SI-ID 2569072].

Brigita Tomšič

1. TOMŠIČ, Brigita, OFENTAVŠEK, Lara, FINK, Rok. Toward sustainable household laundry. Washing quality vs. environmental impacts. *International journal of environmental health research*. 2023, vol. [sprejeto v objavo], iss. [sprejeto v objavo]. DOI: 10.1080/09603123.2023.2194615.
2. LUNDER, Manca, TOMŠIČ, Brigita, FINK, Rok. Biobased natural Sapindus mukorossi–Carvacrol emulsion for sustainable laundry washing. *Sustainability,* 2023, vol. 15, iss. 14 [article no.] 11029, 14 str. DOI: 10.3390/su151411029.

3. FORTE-TAVČER, Petra, BRENČIČ, Katja, FINK, Rok, TOMŠIČ, Brigita. Influence of hydrogen peroxide on disinfection and soil removal during low-temperature household laundry. *Molecules,* 2022, vol. 27, iss. 1, str. 1-11. DOI: 10.3390/molecules27010195
4. FINK, Rok, OFENTAVŠEK, Lara, TOMŠIČ, Brigita. Nizko temperaturno pranje perila. Ravnotežje med kakovostjo in vplivom na okolje. V: KRULEC, Aleš (ur.), TAJNIKAR, Sara (ur.). Slovenski dnevi sanitarnega inženirstva 2023 : Globalni teden zdravja 2023 : zbornik povzetkov = Slovenian Days of Public and Environmental Health Profession 2023 : Global Public Health Week 2023 : book of abstracts. Ljubljana: Inštitut za sanitarno inženirstvo, 2023. Str. 6-7. ISBN 978-961-94556-9-2.
5. FINK, Rok, OFENTAVŠEK, Lara, LUNDER, Manca, TOMŠIČ, Brigita. Trajnostno gospodinjsko pranje perila = Sustainable household laundry. V: KERT, Mateja (ur.), TOMŠIČ, Brigita (ur.). Trajnost in krožno gospodarstvo v tekstilstvu : zbornik izvlečkov : 49. simpozij o novostih v tekstilstvu : 5. oktober 2023, Ljubljana, Slovenija. 49. simpozij o novostih v tekstilstvu, 5. oktober 2023, Ljubljana. Ljubljana: Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, grafiko in oblikovanje, 2023. Str. 22. ISBN 978-961-7189-08-7.

THEORY OF FINISHING

Predmet:	Teorija plemenitenja
Course title:	Theory of finishing
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	2. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068744
Koda učne enote na članici/UL Member course code:	11264

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

Nosilec predmeta/Lecturer:	Barbara Simončič
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 letnik študija. Za pristop k izpitu je pogoj opravljen seminar.	Enrolment into the study year. For the exam, a completed seminar work is a prerequisite.

Vsebina:	**Content (Syllabus outline):**
• 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; • Sorpcija barvila na tekstilna vlakna: stopnja izčrpanja barvila, standardna afiniteta; • Hitrost barvanja: difuzija barvila in difuzijski koeficient, vpliv dejavnikov na hitrost barvanja; • Pomen omakalnih, dispergirnih in egalizirnih sredstev pri barvanju.	• 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 the fibres, and the distribution of the dyeing systems; • The sorption of the dyes on the textile fibres: the rate of the dye exhaustion of dyes, standard affinity; • The rate of dyeing: dye diffusion and the diffusion coefficient, the influence of different factors on the dyeing rate;

	• The importance of wetting, dispersing and levelling agents in the dyeing processes.

Temeljna literatura in viri/Readings:

- SIMONČIČ, B. Teoretične osnove barvanja. Ljubljana: Univerza v Ljubljani, Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2009, 120 str.;
- The theory of coloration of textiles. 2. izdaja. Urednik A. Johnson. Bradford: Society of Dyers and Colourists, 1989, 552 str.;
- BOŽIČ, D. et al. Interdisciplinarnost barve. 1. del. V znanosti. Maribor: Društvo koloristov Slovenije, 2001, 384 str.;
- ROSEN, M. J. Surfactants and interfacial phenomena. 2. izdaja. New York: John Wiley & Sons, 1989, 431 str.

Cilji in kompetence:	**Objectives and competences:**
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.	**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:	**Intended learning outcomes:**
• 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.	• 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:	**Learning and teaching methods:**
Predavanja, samostojna priprava seminarskega dela z javno predstavitvijo.	Lectures, independent preparation of a seminar work with a public presentation.

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Pisni izpit	70,00 %	Written exam
Seminarsko delo	30,00 %	Seminar work

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

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. GORJANC, Marija, KERT, Mateja, MUJADŽIĆ, Amra, SIMONČIČ, Barbara, FORTE-TAVČER, Petra, TOMŠIČ, Brigita, KOSTAJNŠEK, Klara. Cationic pretreatment of cotton and dyeing with Fallopia japonica leaves. Tekstilec, 2019, vol. 62, [no.] 3, str. 181-186. DOI: 10.14502/Tekstilec2019.62.181-186. [COBISS.SI-ID 3642480].
3. GLAŽAR, Dominika, SIMONČIČ, Barbara. TiO2 and ZnO as advanced photocatalysts for effective dye degradation in textile wastewater. Tekstilec, 2023, vol. 66, [no.] 3, 178–198. DOI: 10.14502/tekstilec.66.2023045. [COBISS.SI-ID 163462403].

WEAVING

Predmet:	Tkanje
Course title:	Weaving
Članica nosilka/UL Member:	UL NTF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068734
Koda učne enote na članici/UL Member course code:	11350

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

Nosilec predmeta/Lecturer:	Matejka Bizjak
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:**
Redni vpis v letnik študija. Za pristop h končnemu izpitu je pogoj opravljen kolokvij iz vaj in opravljen seminar.	Regular enrollment in the study year. Before the final exam students must pass colloquium from tutorial and seminar work.

Vsebina:	**Content (Syllabus outline):**
• Osnovni pojmi in konstrukcijske lastnosti tkanin. Spoznavanje tkanin izdelanih v različnih tehnikah tkanja. Lastnosti tkanin: fizikalne, mehanske, prepustnostne • Tehnološki postopki izdelave tkanin: priprava za tkanje (previjanje preje, snovanje, škrobljenje, vlaganje/prevezovanje, priprava votka), tkanje (vrste tkalskih strojev, mehanizmi tkalskega stroja in njihove funkcije), vpliv elektronske opremljenosti tkalskih strojev na raznolikost proizvodnje in efektivnost, ekonomičnost proizvodnje tkanin **Vaje:** • dekompozicija tkanin, načrtovanje in izdelava tkanine z določenimi lastnostmi, računske naloge. **Seminar:** • konstrukcijska priprava novega vzorca iz podatkov dobljenih z dekompozicijo vzorca tkanine in simulacija na CAD sistemu	• Basic terms and constructional characteristics of fabrics. Learning about fabrics made in different weaving techniques. Fabric`s properties: physical, mechanical, permeability • Technological procedures of fabric`s manufacturing: preparation for weaving (winding, warping, sizing, weft preparation), weaving (types of weaving machines, mechanisms of weaving machines and their functions), Impact of electronic equipment of weaving machines to diversify production and efficiency, Cost efficiency of fabric production. **Tutorial:** • calculation exercises, planning fabrics with desired properties, computational tasks **Seminar work:** Structural preparation of new woven fabric with use of data obtained from sample decomposition and fabric simulation on CAD system.

Temeljna literatura in viri/Readings:

- ADANUR, S. Handbook of Weaving. Lancaster : Technomic Publishing Company, 2001; ISBN – 1587160137, COBISS.SI-ID – 23901701.
- Ormerod, A., Sondhelm, W. S. Weaving : technology and operations. Manchester : The Textile Institute, cop. 1995, ISBN - 1-870812-76-X, COBISS.SI-ID - 203888
- Gandhi, Woven textiles : principles, technologies and applications, second edition. Duxford : Woodhead Publishing, 2020, ISBN - 978-0-08-102497-3; 0-08-102497-5, COBISS.SI-ID - 29601027
- Hu, J.,Structure and mechanics of woven fabrics. Boca Raton [etc.] : CRC Press ; Cambridge : Woodhead Pub., 2004, ISBN - 0-8493-2826-8; 1-85573-904-6, COBISS.SI-ID - 9672726
- JAKŠIĆ, D. Priprava osnove in votka za tkanje. Ljubljana : Naravoslovnotehniška fakulteta, Oddelek za tekstilstvo, 2001.
- JAKŠIĆ, D. Tehnologija tkanja. Del 2, Tkanje. Ljubljana : Fakulteta za naravoslovje in tehnologijo, VTO Tekstilna tehnologija, 1980.
- BIZJAK, M. in KOSTAJNŠEK, K. Enostavne vezave tkanin. Ljubljana: Univerza v Ljubljani, NTF, Oddelek za tekstilstvo, grafiko in oblikovanje, 2017.
- Izročki predavanj in drugo gradivo dostopno v spletni učilnici predmeta

Cilji in kompetence:	**Objectives and competences:**
• Študenti se seznanijo z oblikovnimi, konstrukcijskimi, tehnološkimi, ekonomskimi, ekološkimi in drugimi parametri, ki jih je treba upoštevati pri načrtovanju tkanin. • Spoznajo namen posameznih tehnoloških faz pri izdelavi tkanin ter možnosti kako doseči želene lastnosti tkanin. • Poznavanje strojne opreme za pripravo na tkanje in za tkanje. **Kompetence:** • samostojno načrtovanje različnih tkanin in izbira potrebnih proizvodnih faz procesa tkanja za doseganje željenih lastnosti. • Sposobnost spremljanja tehnološkega razvoja na področju tkanja in poznavanje strokovne literature.	• Students will become familiar with the structural, technological, economic and other parameters that must be considered in the design of fabrics. • They will learn the purpose of all technological stages in fabric production and how to achieve the desired fabric properties. • They will know the machinery used for weaving preparation and weaving. **Competencies:** • fabrics and determine the necessary stages of the production process to achieve the desired properties of woven fabrics. • Ability to follow technological developments in the field of weaving and knowledge of technical literature.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Poznavanje različnih tipov tkanin, razumevanje vpliva konstrukcijskih, tehnoloških in proizvodnih parametrov na strukturo in lastnosti tkanine, poznavanje faz nastanka tkanine in primerne tehnološke opreme za določene namene pri izdelavi tkanin.	Knowledge of different weaves, understanding the influence of design, technological and production parameters on the structure and properties of the fabric, understanding the different stages of fabric formation and the appropriate technical equipment for the specific purposes in the production of the woven fabric.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• predavanja • seminar • laboratorijske vaje	• lectures • seminars • laboratory work

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
pisni/ustni izpit	50,00 %	written/oral exam
seminarska naloga	20,00 %	seminar work
kolokvij iz vaj	30,00 %	colloquium from tutorial

Ocenjevalna lestvica:	Grading system:
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

1. KOSTAJNŠEK, Klara, DIMITROVSKI, Krste, KADOGLU, Hüseyin, ÇELIK, Pinar, BAŞAL BAYRAKTAR, Güldemet, ÜTE, Tuba Bedez, DURAN, Deniz, ERTEKIN, Mustafa, DEMŠAR, Andrej, BIZJAK, Matejka. Functionalization of woven fabrics with PBT yarns. Polymers. 2021, vol. 13, iss. 2, str. 1-19, ilustr. ISSN 2073-4360.
2. KOCIĆ, Ana, BIZJAK, Matejka, POPOVIĆ, Dušan, POPARIĆ, Goran, STANKOVIĆ, Snežana. UV protection afforded by textile fabrics made of natural and regenerated cellulose fibres. Journal of cleaner production. [Print ed.]. 10. Aug. 2019, vol. 228, str. 1229-1237. ISSN 0959-6526.
3. STANKOVIĆ, Snežana, NOVAKOVIĆ, Milada, POPOVIĆ, Dušan M., POPARIĆ, Goran, BIZJAK, Matejka. Novel engineering approach to optimization of thermal comfort properties of hemp containing textiles. The journal of The Textile Institute. 2019, vol. 110, no. 9, str. 1271-1279, ilustr. ISSN 0040-5000.
4. ŠAJN GORJANC, Dunja, BIZJAK, Matejka. Impact of pre-finishing process on comfort characteristics of stretchable cotton fabric. Journal of engineered fibers and fabrics. 2015, vol. 10, iss. 3, str. 57-68. ISSN 1558-9250.
5. BIZJAK, Matejka. ITMA 2019 - Tkanje = ITMA 2019 - Weaving. *Tekstilec : glasilo slovenskih tekstilcev*. [Tiskana izd.]. 2020, vol. 63, priloga 1, str. si100-sl111, ilustr. ISSN 0351-3386. [COBISS.SI-ID 21052931]

WOVEN STRUCTURES

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

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Načrtovanje tekstilij in oblačil, prva stopnja, univerzitetni	Ni členitve (študijski program)	2. letnik	1. semester	obvezni

Univerzitetna koda predmeta/University course code:	0068736
Koda učne enote na članici/UL Member course code:	10125

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

Nosilec predmeta/Lecturer:	Matejka Bizjak
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 letnik študija. Opravljene individualne vaje.	Enrolment in the study year. Passed individual exercises.

Vsebina:	Content (Syllabus outline):
• uvod v tkalske vezave, risanje popolne vzornice, temeljne tkalske vezave, izpeljanke temeljnih tkalskih vezav, enostavne dvovotkovne tkalske vezave, enostavne dvoosnovne tkalske vezave in dvojne tkanine • žakarske vezave, računalniško oblikovanje tkanin, osnovni principi vzorčenja: s prejami, barvami, vezavami in posebni efekti	introduction to woven structures, presentation of weave pattern on the point paper, basic woven structure and their derivatives, basic double weft weaves, basic double warp weaves, double weaves Jacquard weaves, use of CAD system for weaving; Basic principles of fabric`s design with different structural parameters (yarn, colours, weave and special effects)

Temeljna literatura in viri/Readings:

- BIZJAK, M. & KOSTAJNŠEK, K.: Enostavne vezave tkanin. Ljubljana: UL, NTF, Oddelek za tekstilstvo, grafiko in oblikovanje, 2017.
- GOERNER, D. Woven Structure and Design: Part 1 and Part 2, Leeds, 1986..
- GANDHI, K.: Woven Textiles - Principles, Technologies and Application, Elsevier Science & Technology : Woodhead Publishing Ltd, Cambridge, United Kingdom, 2019.
- Izbrani članki in gradivo v spletni učilnici

Cilji in kompetence: **Objectives and competences:**

Študenti se seznanijo s konstrukcijo in tehniko izdelave enostavnih tkanin. Spoznajo enostavne tkalske vezave, vpliv preje, konstrukcijskih parametrov tkanine in vezave na videz, lastnosti in namembnost tkanine. Seznanijo se z računalniškim programom za oblikovanje tkanin. **Kompetence:** • poznavanje in razumevanje enostavnih tehnik izdelave tkanin; poznavanje temeljnih tkalskih vezav; poznavanje temeljnih funkcij računalniških programov za oblikovanje in konstruiranje tkanin; poznavanje osnov vzorčenja tkanin; poznavanje strokovne terminologije s področja tkanja.	Students are introduced to the structure and manufacturing techniques of basic woven fabrics. They will learn basic woven structures and the influence of yarn, construction parameters and woven fabric structure on the appearance, properties and use of fabrics. They will learn about a computer programme for designing woven fabrics. **Competencies:** • Know and understand simple techniques for making woven fabrics; Know basic woven structures; Know basic functions of computer programmes for designing and constructing woven structures; Know basic principles of designing various fabrics; Know technical terminology in weaving.

Predvideni študijski rezultati:	**Intended learning outcomes:**
• sposobnost samostojnega načrtovanja temeljnih tkalskih vezav, različnih tehnik tkanja in poznavanje računalniških programov za oblikovanje in konstruiranje tkanin za doseganje lastnosti tkanin v različnih vezavah • razumevanje vpliva različnih konstrukcijskih parametrov tkanin na doseganje različnih vizualnih efektov in otipa	• ability to plan basic woven structures, know various techniques of weaving and know computer programmes for designing and constructing woven fabrics to design desired features of woven fabrics in various structures • understanding the effects of various structural parameters of woven and knitted fabrics to achieve various visual effects and feel.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja Vaje: risanje in uporaba CAD sistema	Lectures Tutorials: drawing and use of CAD Arahne

Načini ocenjevanja:	**Delež/Weight**	**Assessment:**
Izpit (pisni/ustni)	50,00 %	Exam (Written/oral)
Vaje	50,00 %	Tutorials

Ocenjevalna lestvica:	**Grading system:**
5 - 10, pri čemer velja, da je pozitivna ocena od 6 - 10	5 - 10, a student passes the exam if he is graded from 6 to 10

Reference nosilca/Lecturer's references:

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4. ČUK, Marjeta, BIZJAK, Matejka, KOČEVAR, Tanja Nuša. Influence of simple and double-weave structures on the adhesive properties of 3D printed fabrics. *Polymers*. 2022, vol. 14, iss. 4, str. 1-18, ilustr. ISSN 2073-4360. https://www.mdpi.com/2073-4360/14/4/755, https://repozitorij.uni-lj.si/IzpisGradiva.php?id=137293, DOI: 10.3390/polym14040755. [COBISS.SI-ID 97600003].

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