

Textile and clothing engineering

Basic informations

Level and type of study programme: Undergraduate study programme—higher education professional study programme – Study programme for acquiring knowledge

Duration: 3 years (6 semesters), 180 total credit points according to the ECTS System

Study the scope of the ISCED classification: (54) Production technology

The scientific discipline of Frascati classification: Engineering and Technology

Anticipated professional title: Graduate Textile Engineer

Competences

- Extensive professional knowledge in the field of study in question, augmented by selected knowledge in the areas of natural sciences, management, information and communication technologies, aesthetics and textile design;
- The capacity to comprehend the interdependence between technology and design;
- The capacity to communicate with co-workers and experts in related disciplines, which will facilitate active cooperation in teamwork as well as in projects based on linking the principles of professional and design practices;
- Well-developed professional ethics and environmental responsibility;
- The ability to use modern tools, skills and dexterity, especially in the field of IKT technologies, in everyday professional work;
- The capacity to recognise the harmony between function and design, construction and the proportions of the human body and clothing;
- The capacity to supervise, analyse and manage the working processes in a textile and clothing company;
- Understanding trends in the textile and clothing profession in Slovenia as well as in the rest of Europe.

Employment possibilities

With the acquired knowledge, including a semester of practical training, graduates in textile and clothing engineering can be employed in small and medium-large textile and clothing companies, and also in the textile trade and service activities.

Enrolment conditions

Enrolment in the programme shall be possible for any person who has completed the final exam, professional graduation or matura graduation in any four-year secondary school programme.

If the number of candidates applying for the programme exceeds the number of enrolment spaces, candidates shall be selected according to the following criteria:

- general success on the final exam, professional graduation or matura graduation (60%),
- general success in the 3rd and 4th year of secondary school (40%).

Student obligations

For entry into a higher class, the student must have confirmed attendance in all courses, complete all practical classes and have the following number of ECTS credit points for entry into each individual class:

- a minimum of 54 ECTS credit points for entry into the 2nd year;
- 60 credit points from the first year and a minimum of 54 ECTS credit points from the second year for entry into the 3rd year.

To repeat a class, students must have:

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

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

Grading method

The student's level of learning shall be established and graded by individual courses, and by concluding the learning process of each course with a final exam. The general rules of verifying knowledge shall be regulated according to the NTF (Faculty of Natural Sciences and Engineering) Examination Regulations approved by the senate of this institution. The methods of verifying knowledge for all courses shall be a written and/or oral exam.

At the same time, previous knowledge that is a prerequisite for taking the exam shall be verified for each individual course.

The method for verifying knowledge can be: papers and project reports, practical tasks or products, presentation and defence of papers and project works, reports on completed practical classes, oral knowledge verification during practical classes and/or an examination of practical work.

The grading scale prescribed by the Statute of the University of Ljubljana shall be used for grading. All forms of knowledge verification shall be graded with the following marks: 6—10 (positive), 5 (negative).

Practical training shall be completed with a paper, which will be graded according to the grading scale as: passed/not passed.

Transfer between programmes

The transition is possible between the study programs:

- who, at the end of their studies, ensure the acquisition of comparable competencies or learning outcomes;
- among which, according to the criteria for recognition of knowledge and skills acquired before enrollment in the higher professional study program of Textile and Clothing Engineering, at least half of the obligations under the European Credit Transfer System (ECTS) from the first study program related to compulsory subjects higher professional study program of the first level Textile and Clothing Engineering.

An individual exam passed in the original study program is recognized as passed in the higher professional study program of the first level Textile and Clothing Engineering, if the harmonization of the contents of both subjects is at least 75%. The recognized exam is evaluated with credit points in the original study program, but not with more credit points, as evaluated in the higher professional study program of the first level of Textile and Clothing Engineering.

In the second or third year of the higher professional study program of the first level of Textile and Clothing Engineering, a candidate may enroll with a transfer if:

- meets the conditions for enrollment in the study program,
- vacancies are available.

The Study Commission of the Faculty of Natural Sciences and Engineering determines for each candidate to what extent it recognizes already completed study obligations, determines the obligations and determines in which year the candidate can pass.

Selecting External Optional Courses

A student can obtain 30% of the facultative units of the programme (10 credit points) in other study programmes at the Department of Textiles, Graphic Arts and Design or through programmes at other faculties and schools of higher education.

Mobility

Students have the possibility of transferring 30 credit points (one study semester, regardless of the obligatory or elective units) from any programme in the field of textile or production technology offered by universities and other institutions of higher learning in the AUTEX network.

Curriculum

1st year

Subject	Hours					ECTS
	L	S	E	A	Σ	
1st semester					450	30
Information technologies	30	0	30	0	60	4
Aesthetics of textiles and clothing	30	30	0	0	60	4
English for specific purposes	0	60	0	0	60	4
Textile raw materials	45	30	15	0	90	6
Yarns	30	30	30	0	90	6
Physical-mechanical properties of textiles and clothing	30	30	30	0	90	6
2nd semester					450	30
Basics of finishing	45	45	0	0	90	6
Development of clothing patterns	30	15	15	0	60	4
Woven fabrics	30	15	45	0	90	6
Knitted fabrics and knitwear	30	30	30	0	90	6
Nonwovens	30	0	30	0	60	4
Basics of visual expression	30	30	0	0	60	4
TOTAL					900	60

Curriculum tags:

L - lectures,

S - seminars,

E - exercises,

A – advanced work (project work),

ECTS – credit points by the European credit system (1 credit point means 15 hours of student obligation).

2nd year

Subject	Hours					ECTS
	L	S	E	A	Σ	
3rd semester					450	30
Statistics methods in textile	30	0	30	0	60	4
Introduction to textile and fashion design	30	30	0	0	60	4
Production planning and management	30	30	0	0	60	4
Bleaching and finishing	60	15	15	0	90	6
Dyeing	45	0	45	0	90	6
Basic methods in textile testing	30	30	30	0	90	6
4th semester					450	30
Technical textiles and composites	45	30	15	0	90	6
Apparel technology	30	30	30	0	90	6
Textile printing	30	15	45	0	90	6
Optional subject 1	0	0	0	0	60	4
Optional subject 2	0	0	0	0	60	4
Optional subject 3	0	0	0	0	60	4
TOTAL					900	60

Curriculum tags:

L - lectures,

S - seminars,

E - exercises,

A – advanced work (project work),

ECTS – credit points by the European credit system (1 credit point means 15 hours of student obligation).

3rd year

Subject	Hours					ECTS
	L	S	E	A	Σ	
5th semester					450	30
Practical training	0	0	0	0	0	30
6th semester					450	30
Textile care 1	30	15	15	0	60	4
Planning textiles and comfortableness of clothing	30	15	15	0	60	4
Ecology in textile	30	15	15	0	60	4
Optional subject 4	0	0	0	0	60	4
Optional subject 5	0	0	0	0	60	4
Optional subject 6	0	0	0	0	60	4
Diploma					90	6
TOTAL					900	60

Curriculum tags:

L - lectures,

S - seminars,

E - exercises,

A – advanced work (project work),

ECTS – credit points by the European credit system (1 credit point means 15 hours of student obligation).

Facultative courses

Subject	Hours					ECTS
	L	S	E	A	Σ	
Computer-assisted design of yarns and woven fabrics	30	0	30	0	60	4
Computer-assisted knitted fabrics and knitwear design	30	0	30	0	60	4
Computer systems in apparel manufacturing	30	0	30	0	60	4
Computer-assisted design for printing	30	15	15	0	60	4
Marketing of textiles and clothing	45	15	0	0	60	4
Entrepreneurship	30	15	15	0	60	4
Applicative psychology	30	30	0	0	60	4
Quality management	30	30	0	0	60	4
Textile and clothing tradition	45	15	0	0	60	4
Leather and fur	45	15	0	0	60	4
Interior textiles	30	30	0	0	60	4
Styling consulting	30	30	0	0	60	4

Curriculum tags:

L - lectures,

S - seminars,

E - exercises,

A – advanced work (project work),

ECTS – credit points by the European credit system (1 credit point means 15 hours of student obligation).

Description of courses

Information technology (4 ECTS): computer networks and services; the Internet and the World Wide Web; standards and formats; author's rights in the globalised access to multimedia content; biometrics; basics of multimedia, multi-modality and interactivity.

Aesthetics of textiles and clothing (4 ECTS): origin, function and the meaning of clothing; the psychology and sociology of fashion; the history of clothes and textiles; fashion designers; specific areas of clothing; fashion accessories; graphic design in advertising and fashion.

English for specific purposes (4 ECTS): upgrading general knowledge of English to a higher professional level; reading strategies and discourse of professional texts; determining key words and writing abstracts, articles and reports; description of graphs; business communication; taking part in discussions.

Textile raw materials (6 ECTS): textiles and technical fibres: basic concepts, systematisation, historical development, identification, production technology, molecular structure, basics of supra-molecular structure, properties, fibres important for marketing, modification, innovations, functional properties of fibres in products.

Yarns (6 ECTS): spinning properties of yarns; types and properties of yarns; technological processes of producing yarn; planning and coordination of the spinning process; significance and effect of technological stages on the properties, productivity and price of spinning yarn.

Physical-mechanical properties of textiles and clothing (6 ECTS): interaction between the geometry and physical properties of fibre and textiles; geometric and physical properties of textiles and clothing; interaction between geometric parameters and physical properties of the textile product.

Basics of finishing (6 ECTS): colour and chemical structure of dyes; determining the concentration of dyes in a solution and on fibres; solubility of dyes; aggregation of dyes; classification of dyeing systems; dye-fibre interaction; thermodynamics of dyeing; kinetics of dyeing.

Development of clothing patterns (4 ECTS): clothing anthropometry; technological documentation; pattern construction/modelling; pattern grading; pattern adaptation; computer systems for pattern construction/modelling/grading.

Woven fabrics (6 ECTS): structure, type and classification of textiles; properties of woven fabrics; stages of weaving production; types of weaving machines and their classification; mechanisms of weaving machines and their functions.

Knitted fabrics and knitwear (6 ECTS): the use of knitted fabrics and knitwear; types and properties of knitted fabrics and knitwear; parameters and planning of knitted fabrics and knitwear; planning knitting processes; quality of knitted fabrics and knitwear; care of knitted fabrics and knitwear; CAD/CAM/CIM systems in knitting.

Nonwovens (4 ECTS): definition and types of non-woven textiles; historical development and trends in non-woven textiles; classification of non-woven textiles; non-woven textile production processes; processing non-woven textiles.

Basics of visual expression (4 ECTS): visual conception and principles; distinguishing between the figure and background; the role of contrast and assimilation; the principles of organisation of the field of vision; brightness and colour; artistic elements; sensory and psychological elements of space; depth guidelines.

Statistics methods in textile (4 ECTS): planning analysis; basic statistical concepts; analysis of distribution frequency; theoretical distribution models; analysis of two values; analysis of multiple values; correlation analysis; regression analysis.

Introduction to textile and fashion design (4 ECTS): analysis of textile product design; possibilities for the use of textiles; published achievements in textile design; fashion recommendations fashion ranges; haute couture; generally designed collections at a lower price range; development of fashion trends; selection of collections; specific design; process of fashion design; the designer's role in the development of new collections.

Production planning and management (4 ECTS): organisational structures; production activities; business functions; organisation of the production function; preparing work; production; support activities; economising with the means of work.

Bleaching and finishing (6 ECTS): pre-treatment; modern pre-treatment processes; processes of chemical finishing; processes of mechanical finishing; mechanical

equipment; chemical agents; influence on the environment and people; analysis of the quality of processes.

Dyeing (6 ECTS): technological water preparation; preparing of dyes; dyeing procedures; dyeing of natural, chemical and synthetic fibres; auxiliaries and methods for after-treatment of dyed material; colour fastness.

Basic methods in textile testing (6 ECTS): the importance and use of textile testing; standards and their uses; sampling and evaluation of measurements; basic methods of fibre testing; basic methods of yarn testing; basic methods of fabric testing; basic chemical analysis of textiles.

Planning textiles and comfortableness of clothing (4 ECTS): classification of clothing textiles, trimmings, functional properties of textiles, technological process of producing textiles—from fibre to finished fabric; analysis and evaluation of the comfort of clothing textiles: thermo-physiological, handle, movement and aesthetic comforts.

Apparel technology (6 ECTS): ISO standards for apparel manufacturing; development of a product; preparing collections; preparing production; organisation of production; technological documentation; technological demands of ready-made wear; quality requirements; automation; production management.

Textile printing (6 ECTS): historical development; mechanical devices and equipment; procedures for producing printing forms; procedures of pattern reproduction; preparing fabrics; dyes; printing pastes; fixing and subsequent processing; special printing procedures; environmental issues in printing.

Practical training (30 ECTS): verification and upgrading of theoretical knowledge in the working environment; company organisation and operation; active integration into the working environment in production (learning about machine equipment, development, planning, planning products, processes and services, management of finishing processes and understanding quality).

Textile care 1 (4 ECTS): processes of textile care; theoretical approaches of wetting and washing; surface active agents; washing agents; soils; water as washing media, products and procedures for dry cleaning; removal of stains; environmental aspect.

Technical textiles and composites (6 ECTS): definition, market importance. 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. Study of construction, coatings and finishing. Recycling of technical textiles. Textiles reinforced composites. Structural composites – laminates.

Ecology in textile (4 ECTS): Basics of ecology and environmental protection; textile production ecology; textile human ecology; classification of environmentally friendly products and environmentally friendly textiles; criteria for gaining eco-labels; textile disposal ecology; environmental analysis; environmental legislation and standardisation.

Computer-assisted design of yarns and woven fabrics (4 ECTS): simple and demanding construction of yarn; computer simulation of yarn and textiles; possibilities of colour and other types of patterning; colour metrics in weaving; ArahPaint, ArahWeave and ArahDrape computer programs.

Computer-assisted knitted fabrics and knitwear design (4 ECTS): CAD systems in weft knitting; CAD systems in warp knitting; principles of colour management in computer-assisted preparation of knitted fabric/knitwear collections; computer-assisted knitting yarn design.

Computer systems in apparel manufacturing (4 ECTS): CAD/CAM systems in the clothing industry; lay planning and marker making; producing technical support documentation; management of material flow and cost calculations; computer-assisted cutting; 3D visualisation of products.

Computer-assisted design for printing (4 ECTS): preparing patterns; print form production procedure; pattern reproduction procedures; picture digitalisation and saving graphic files; basics of colour management; colour reduction; repeat sketch; colour separation; vector and raster pictures; simulation of textiles and special effects.

Marketing of textiles and clothing (4 ECTS): significance of marketing textiles and clothing; markets and market research methods; market segmentation; fashion forecasting; designing of marketing mix; brand management in fashion.

Entrepreneurship (4 ECTS): developing entrepreneurship opportunities; creativity techniques; entrepreneurial approaches; business planning; market analysis; economics of a business idea; marketing planning; development and production (service) process planning; entrepreneurial grouping; critical risks.

Applicative psychology (4 ECTS): basic psychic processes; mechanisms and differences among people; personal relationships; psychology of purchase and sale.

Quality management (4 ECTS): systems of quality management; theoreticians of quality management; standards in quality management; evaluation and certification of quality systems; methods and techniques of quality management; quality economics; comprehensive quality management; self-evaluation and quality awards.

Textile and clothing tradition (4 ECTS): 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/ design, European textile and clothing tradition, Slovenian textile and clothing tradition (trade, industry, design).

Leather and fur (4 ECTS): history and future of leather and fur, trading of leather and fur, sources of skins to produce leather and fur, types and characteristics of natural and artificial leather, types and characteristics of natural and artificial furs, applied properties of leather, applied properties of fur, labelling of leather and fur and regulatory constraints, maintenance and care of leather and fur.

Interior textiles (4 ECTS): Introduction: learning about the historical development of the interior textiles and the major design achievements in this field. Learning about conventional and specialty raw materials for the interior textiles as well as their characteristics and specialities. Learning about basic properties, use and construction of various textile products for interior Learning about the structure and properties of textiles for specific purposes in the interior. Learning about specific methods of testing and quality assurance of interior textiles.

Styling consulting (4 ECTS): Understanding of the term stylism and its sub fields. The role of stylism and style consulting for branding or individual purposes. Linking the various fields connected directly to fashion stylism purposes (hair, make up, photography etc.). Basics knowledge and practical competences for creating simple resoult focused styling identities.

Contact

Chair of Textile and Clothing Engineering

Department of Textiles, Graphic Arts and Design

Snežniška 5, 1000 Ljubljana

Telephone: 01 200 32 00

Fax: 01 200 32 70

Web: <http://www.ntf.uni-lj.si/toi/>

E-mail: toi@ntf.uni-lj.si

Faculty of Natural Sciences and Engineering

Aškerčeva cesta 12, 1000 Ljubljana

VAT ID No.: SI24405388

Registration No.: 1627074

Activity code: 80.303

Subaccount at UJP: 01100-6030708186

