Lodz University of Technology

Study programme

Faculty:	Faculty of Textiles and Design
Major:	Textiles and Fashion Industry
Level of study:	first-cycle programme (inżynier)
Form of study:	part-time studies
Academic year:	2026/27

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Basic information

Name of the field of study:	Textiles and Fashion Industry
Level of study:	first-cycle programme (inżynier)
Study profile:	general academic
Form of studies:	part-time studies
Duration of studies (number of semesters):	7
The number of ECTS points required to complete studies:	210
Total number of hours of classes:	1322
The number of ECTS points a student obtains as part of classes conducted with the direct participation of academic teachers or other persons conducting classes:	53
Professional title awarded to graduates:	inżynier
ISCED code:	0719
Language of study:	polish

Assigning the course to the disciplines to which the learning outcomes relate

Discipline	Percentage share
Material Engineering	100%

Learning outcomes (in relation to the PQF)

No.	Learning outcome code	Learning Outcome Content	Reference to the universal characteristics of the first level of PRK	Reference to the second-level characteristics of the PRK, taking into account the second-level characteristics enabling the acquisition of engineering competences
1	**1WPM1**	Has knowledge in basic and applied sciences necessary to understand phenomena occurring in technological processes, textile products, and research methods, as well as to solve engineering problems, particularly in textile materials engineering.	P6U_W	P6S_WG
2	**1WPM2**	Has basic knowledge of information technology necessary for engineering tasks, especially in computer-aided design and manufacturing of textile materials and products, and in multidimensional measurement data analysis.	P6U_W	P6S_WG
3	**1WPM3**	Has advanced knowledge of the structure, design, technology, properties, and research methodology of fibers, textile materials, and products.	P6U_W	P6S_WG
4	**1WPM4**	Demonstrates basic knowledge of production process management, textile and apparel product marketing, and business principles. Understands intellectual property protection, including industrial designs and design documentation, as well as the importance of ethics, reliability, and responsibility in engineering.	P6U_W	P6S_WK
5	**1WPM5**	Demonstrates the ability to search for data in scientific literature, standards, raw material catalogues, and specialised textile industry databases. Demonstrates ability to integrate and interpret obtained information, formulate conclusions, and justify design and technological decisions.	P6U_U	P6S_UK, P6S_UO, P6S_UU
6	**1WPM6**	Can select and use appropriate materials, tools, and methods to solve engineering problems, especially in the areas of design, technology, evaluation of raw materials, textile materials and products, and auxiliaries used in textiles.	P6U_U	P6S_UW, P6S_UK
7	**1WPM7**	Is prepared to work in the textile and apparel industry. Demonstrates ability to independently and collaboratively plan and execute engineering tasks, estimate project time, divide tasks among team members, and apply occupational health and safety principles in laboratory and production environments.	P6U_U	P6S_UK, P6S_UO
8	**1WPM8**	Has skills in using a foreign language necessary for communication, document analysis, and operation of IT tools, especially in the field of textiles, in accordance with B2 level requirements of the Common European Framework of Reference for Languages (CEFR).	P6U_U	P6S_UK
9	**1WPM9**	Is aware of the importance and understands non-technical aspects and consequences of engineering activity, its environmental impact, basic economic, legal, and other conditions of engineering activity, and understands the need to comply with teamwork principles.	P6U_K	P6S_KK, P6S_KO

No.	Learning outcome code	Learning Outcome Content	Reference to the universal characteristics of the first level of PRK	Reference to the second-level characteristics of the PRK, taking into account the second-level characteristics enabling the acquisition of engineering competences
10	**1WPM10**	Is aware of the importance of acting professionally, taking responsibility for decisions, being accountable for jointly executed tasks, and adhering to professional ethics and respect for diversity of opinions and cultures.	P6U_K	P6S_KO, P6S_KR

Matrix of course modules in relation to learning outcomes and curriculum content

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
1	Mathematics I	The concept of a function. Elementary functions. Complex numbers - action activities on complex numbers, solving quadratic equations. Limits of number sequences. Limits of functions. Derivative of a function of one real variable. The concept of a random variable and elements of descriptive and mathematical statistics.	x					x				
2	Physics I	Classical physics, with a particular focus on radioactivity, dynamics, acoustics, and magnetic and electric fields.	x					x				
3	Introduction to Textiles	History and development of textile technologies. Trends and innovations in textiles. Humanistic and ecological aspects of textiles and clothing. Basic fibres and theri properties.			x	x		x			x	
4	Elements of Creative Design	Basic concepts in design. Determinants of the design subject. Design problems. Basic elements of art knowledge.		x				x			x	
5	Engineering Drawing	Graphical representation of three-dimensional objects. Mapping and dimensioning of machine components. Schematics and assembly drawings.		x				x				
6	General Chemistry	Basic issues in general, inorganic, organic, technical and physical chemistry.	x					x				
7	Electrical and Electronic Engineering	Basic issues in electrical engineering and electronics with elements of optoelectronics and printed electronics. RLC components in alternating current circuits. Power supply systems. Analogue electronic circuits. Digital logic circuits.	x					x				
8	Mathematics II	Basic methods of integration. Definite and improper integrals, applications of integrals. Differential calculus of functions of several real variables - partial derivates, local extrema. Algebra of matrices, determinant, inverse matrix. System of linear equations, Cramer's theorem, Gaussian elimination.	x					x				
9	Physics II	Solid state and experimental physics in relation to the study of engineering material properties.	x					x				
10	Basics of Physical and Organic Chemistry	Basic concepts and issues in physical and organic chemistry. Chemical thermodynamics. Phase equilibria. Multicomponent systems. Organic compounds and their properties.	x					x				
11	Information Technologies 1	Familiarization with the environment and conditions for the safe use of software and internet services, particularly with the extended capabilities of office software such as word processors, presentation programs, and spreadsheets; e-services available in Poland, cybersecurity in computer networks, digitization techniques, practical mechanisms of artificial intelligence, as well as copyright laws and licensing principles.		x				x				
12	Textile Metrology and Standarization	SI system. Fundamentals of mathematical statistics. Standardisation and certification. Quality systems in laboratories. Testing of climate, fibres and textile materials.		x	x			x				

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
13	English n. B2 module I	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
14	English n. B2+ module I	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
15	English n. C1 module I	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
16	Technical Mechanics	Principles of statics; release from constraints; analysis of planar systems of convergent forces; arbitrary planar systems of forces; and issues of friction. Basic information on material strength.	x					x				
17	Mechanical Textile Technologies	Basic issues in spinning, weaving and knitting. Textile raw materials. Spinning, weaving and knitting technologies. Basic concepts and structural parameters of yarns, woven and knitted fabrics.			x			x				
18	Basics of Nonwovens and Fibrous Composites	Fundamentals of nonwoven and fiber composite technology, raw materials used, basic fleece formation techniques, and nonwoven applications. Surface modification of composite materials.			x			x				
19	Chemical Textile Technologies	Obtaining fibre-forming polymers. Fibre formation. Chemical fibre technologies and testing. Fabrics' pre-treatment, bleaching and dyeing. Thermal stabilisation and dyeing of synthetic fibre products.			x			x				
20	Clothing Technology	Basics of apparel manufacturing. Pattern production. Apparel manufacturing processes. Heat treatment and shaping of apparel products.			x			x				
21	English n. B2 module II	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
22	English n. B2+ module II	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
23	English n. C1 module II	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
24	Basics of Automation and Textronics	Objects and controllers; control systems. The properties of basic elements and automation systems in industrial processes. Elements of robotics and industrial process automation. Textronics, power supply, data transmission and processing in textronic devices. echnologies for manufacturing textronic sensors and actuators.	x		x			x				
25	Basics of Machine Design and Operation	Material and strength aspects of safety. Joints of machine elements . Machine diagnostics. Machine operating systems and reliability.	x					x				

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
26	Mechanics of Textiles and Textile Composites	Types and structure of fibre composites. Manufacture of composites. Modelling of composites. Properties of composites. Composites in textiles.			x			x				
27	Fundamentals of Textile Care	Water in textile care processes. Basic information on water washing. Grey colouring of textiles. Standardised textile care symbols.			x							
28	Information Technologies 2	Methods of representing algorithms for solving engineering problems, as well as the specifics of formulating them, which are closely tied to the structures of modern programming languages and the unique algorithmic way of thinking. Ability to program both typical and self-defined problems in a chosen programming language. Introduced to common data types and structures, control statements, and the overall structure of a program.		x				x				
29	Basics of 3D Printing	Topics in additive technology. Basic 3D printing methods and materials used in additive processes. Principles of designing components for additive manufacturing. Practical 3D modeling. Preparing designs for printing using dedicated software.			x			x				
30	Elements of Project Management	Fundamentals of lifecycle analysis. Experimental planning. Fundamentals of project management. Copyright and intellectual property protection.				x	x				x	x
31	English n.B2 module III	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
32	English n. B2+ module III	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
33	English n. C1 module III	Selected lexical and grammatical issues, as well as topics and linguistic contexts characteristic of the learning and working environment of a university graduate.								x		
34	Material Designing of Clothing	Mechanical product properties responsible for the fabrication process. KES and FAST systems. Clothing comfort. Classification and selection principles for auxiliary materials for clothing accessories. Fabrication characteristics of textile materials.			x			x				
35	Clothing Design and Modeling	Clothing anthropometry. Clothing construction methods. Upper and lower body product construction. Clothing design using CAD. Pattern layout development.			x			x				
36	Specialized Clothing	Specialized clothing. Functionalization of apparel materials for specialized garments. Development trends in specialized apparel.			x			x				
37	Technology of Clothing Products	Technical and technological design in the fashion industry. Clothing technology. Adhesive bonding technology. Machines and tools applied in clothing manufacturing. Clothing structure and forms of documenting the structure of clothing products.			x			x				

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
38	Organization of the clothing production process	Specificity of production processes in the fashion industry. Ergonomics of workstations. Issues related to designing garment manufacturing processes. Systems and methods of organizing clothing production in sewing factories. Use of computer techniques for designing, simulating, and controlling technological processes in the fashion industry.			x				x			
39	Internship PITT	Acquiring practical knowledge and new professional skills in the natural environment of the workplace.							x			
40	Internship PChPW	Acquiring practical knowledge and new professional skills in the natural environment of the workplace.							x			
41	Internship PIiTO	Acquiring practical knowledge and new professional skills in the natural environment of the workplace.							x			
42	English n. B2 module IV	Selected lexical grammatical issues and linguistic topics and contexts characteristic of higher education learning and work environments.								x		
43	English n. B2+ module IV	Selected lexical grammatical issues and linguistic topics and contexts characteristic of higher education learning and work environments.								x		
44	English n. C1 module IV	Selected lexical grammatical issues and linguistic topics and contexts characteristic of higher education learning and work environments.								x		
45	Implementation of Clothing Design Projects	Advanced clothing design and modeling. Implementation of clothing construction projects. Architectural design of ready-made products. Technology for sewing the technical products. Implementation of clothing prototypes.			x			x				
46	Design and Technology of Knitted Clothing	Requirements for knitted clothing and their implementation possibilities. Principles of designing knitted, ready-made, and seamless products. Knitted clothing technology. Pattern, material, and technological design of knitted clothing.			x			x				
47	Design of Clothing for Fashion Industry and Technical Purposes	Final classes summarizing the educational cycle in the specialization “Clothing Design and Technology.” The project includes all stages and aspects of designing and implementing a clothing product.						x	x		x	x
48	Textile Marketing	Specificity of marketing activities in the textile and apparel market. Market segmentation. Marketing strategies and marketing mix in the textile and apparel market. Marketing research.							x			
49	Safety of Work and Ergonomics	Basic requirements in the field of ergonomics and occupational safety. Hazards in the work environment. Human exposure to current. Accidents at work and occupational diseases. Hygiene and sanitary facilities and equipment.							x			x
50	Choice Questions of Mechanical Engineering of Textiles	Friction barriers and phenomena occurring on friction barriers in textile processes. Electrification of textile raw materials and products. Voltage waves and pulses in yarns. Yarn breakage in textile processes. The impact of the textile industry on the environment.			x							

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
51	Surface, Sorption and Diffusion Phenomena in Chemical Finishing of Fibres	Issues related to surface phenomena as well as the sorption and diffusion of dyes and auxiliary agents in dyeing, printing, and finishing processes of fibers and textile products.			x							
52	Nanotechnologies in Textiles	Characteristics, development directions, and the latest achievements in nanotechnologies. Nanostructural materials. Nanofibers. Modification of conventional fibers using nano-additives. Nanotechnologies in textile finishing. Polymer nanocomposites.			x							
53	Special Polymers	Polymers with special properties in modern textile engineering. Polymers in electronics and optoelectronics. Liquid crystalline polymers. Vinyl copolymers obtained from reactive monomers.			x							
54	Innovative Technologies of Linear Textiles	Development directions of spinning technologies. Innovations in fiber preparation processes. Innovative spinning methods. Technologies of linear technical products. Automation of technological processes. Quality control systems for the spinning process. Modeling of linear textiles.			x							
55	Development Trends in the Clothing Patterns Design	Anthropometric measurements. Garment construction. CAD systems supporting design and pattern modeling. Mass customization in the clothing industry. Smart clothing. Integrated garments. Printed garments. Direct 3D garment design.			x							
56	Innovative Knitting Technologies	Development directions of knitting technologies. Knitting technologies for innovative knitted fabrics intended for clothing and technical applications. Quality control systems for the knitting process. Characteristics of modern knitted fabrics. Modern raw materials for producing special-purpose knitted fabrics.			x							
57	Intelligent Textile Products	Biomimetics and its objectives. Biomimetic textile materials. Intelligent materials. Processes and mechanisms of operation of biomedical materials. Features of intelligence in textile products.			x							
58	The New Modified Fibres-Their Specific Esthetic and Functional Properties	Methods of fiber modification and their effectiveness. Specific properties of fibers and their determinants. The impact of fiber modification processes on the natural environment.			x							
59	Selected Problems in Strength of Materials	Complex strength, strength hypotheses. Vibrations of systems with one and multiple degrees of freedom without damping and with damping made of textile material. Thermomechanics of textile structures. Material degradation. Static and fatigue strength.			x							
60	Diagnostics and Ergonomics of Textile Objects	Technical diagnostics of textile objects and systems. Monitoring of textile objects. Textile machines as sources of vibration and noise. Diagnostic signals. Computer-aided diagnostics. Characteristics of work processes. Assessment of workload. Protection against harmful factors.			x							
61	Enlargement of the European Internal Market - Possibilities for SMEs	Characteristics of the Single European Market (SEM). Rules of competition and environmental protection within the SEM. Economic and Monetary Union. Policy toward small and medium-sized enterprises within the SEM. Common Commercial Policy.										

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
62	Technology of Functinal Nonwovens Materials	Technology of innovative nonwoven materials. Design of garment elements and interior textiles. Methods of obtaining functional materials. Methods of connecting layered material structures and types of layered textile products. Determination of qualitative parameters of functional textile products.			x			x				
63	Sewing Treads Structure ad Properties	Thread constructions and properties. Quality evaluationand classification of threads. Principles of thread selection for sewing technologies.			x			x				
64	Creative Design in the Circular Economy	Running your own business. Organization and management. Basic economics. The circular economy. Tools for generating ideas and defining solutions.				x			x		x	x
65	Textile Metrology	Measurement methods and tools for the evaluation of fibers and textiles. Basic statistical methods for the analysis of results. Legal acts and standards related to the textile industry.						x				
66	Spinning Technologies	Methods for designing linear textiles in relation to technology. Evaluation of technologies based on spinning parameters. Principles for modifying textile parameters.						x				
67	Weaving Technolgies	Complex weaves. Principles of creating special effects. Gauze weaves. Orthogonal and multiaxial fabrics.						x				
68	Knitting Technologies	Knitted fabric design and its implementation on a knitting machine.						x				
69	Technology of Nonwovens	Design of a nonwoven fabric for a specific application. Selection of raw materials and technology. Selection of technological parameters. Technical and technological documentation of nonwovens.						x				
70	Clothing Technology	Design of a garment product. Design documentation of the product, selection of materials, and project implementation.						x				
71	Textile Finishing	Development of technological assumptions for selected textile finishing processes. Preparation of technical documentation, selection of finishing agents, technological trials, and testing of finished textile products.						x				
72	Technologies of Chemical Fibres	Development of a project for a selected chemical fiber technology. Design of a technological production line.						x				
73	Mechanics of Textiles	Composites with barrier properties, application of membranes. Membrane permeability. Modeling of heat and/or mass transfer in composites with barrier properties. Numerical analysis of mechanical and/or thermal properties of composite materials.						x				
74	Diploma Seminar	General characteristics and requirements for engineering theses and the different types of thesis. Analysis of the topic. The purpose and methodology of the thesis. Formulation of the thesis statement. Development of the experimental part and conclusions of the thesis. Competency examination.		x	x	x	x					

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
75	Graduation Internship	Training in occupational health and safety and fire safety. Familiarisation with the organisational structure of the plant. Familiarisation with the machine park and laboratory. Familiarisation with the technologies used in the plant/research methods. Designing textile/clothing products.							x			
76	Final Project	Implementing appropriate research methodology: reviewing the literature and formulating hypotheses or specific work objectives. Identifying specific tasks. Selecting methods and tools appropriate to solving the problem; for experimental work, conducting experiments. Analyzing the obtained results. Describing the results. Detailed content depends on the selected work topic.		x	x		x	x				
77	Architectural Textile Design	Construction of ordered, rhythmic, and repeatable open compositions based on simple geometric signs as pattern building elements.						x				
78	Material Trends in the Textile Industry	Innovative spinning raw materials. Innovative yarn and nonwoven technologies. The influence of fiber type on the quality and performance parameters of linear and flat textile products. Characterization of binders and modifiers. Methods for producing nanofibers.			x			x				
79	Design and Technology of Linear Textile Products	Structure and classification of linear textile products. Planning and implementation of the technological process for linear textile products. Research and assessment of the structural and mechanical properties of yarns. Assessment and modeling of yarn parameters. Design of linear products.			x			x				
80	Design and Technology of Nonwoven Products	Nonwoven fabric structure and technologies. Designing selected functional properties of nonwoven products. Selecting raw materials, machinery, and technological process parameters. Conducting a preliminary economic analysis for launching production of the designed product range. Evaluating nonwoven fabric properties.			x			x				
81	Design of Knitted Structures and Properties	Characteristics of knitting yarns and their applications. Performance properties of knitted fabrics. Principles of designing knit patterns and knit structures.			x			x				
82	Design and Technology od Knitted Fabrics	Characteristics of knitting yarns and their intended uses. Functional properties of knitted fabrics. Principles of designing knitted patterns and weaves. CAD/CAM systems for knitted fabric design. Design and implementation of knitted fabrics based on selected CAD/CAM systems.			x			x				
83	Design and Technology of Woven Fabrics	Woven fabric structure. Designing woven fabric structures and properties. Preparatory processes for weaving. Preparation of technological documentation for selected woven fabric types.			x			x				
84	Design of Textile Product for Technical Purposes and for Fashion Industry	Creation of linear and flat textile products. Evaluation of technological parameters. Design of a final product using technical-purpose knitted fabrics. Identification of waste streams in textile production to create alternative applications for materials as an innovative and sustainable solution to the waste problem in the textile industry.						x	x		x	x

No.	Course name	Program content	1WPM1	1WPM2	1WPM3	1WPM4	1WPM5	1WPM6	1WPM7	1WPM8	1WPM9	1WPM10
85	Design and Technical Knitted Fabrics	Structure and technology of knitted fabrics used in composites. Structure and technology of technical multi axial, coated, multi bar, multi layer, and 3D spacer knitted fabrics. Design of technical knitted structures.			x			x				
86	Woven Technologies for Composites	Structure of fabrics. Complex weaves. Leno weaves. Orthogonal and multiaxial fabrics. Preparation of warp and weft. Technology of technical and specialty fabrics.			x			x				
87	Structure and Properties of Polymers	Physical chemistry of polymers. Analytical chemistry. Instrumental analysis of polymers. Fiber physics.			x			x				
88	Technology of Chemical Fibres	Development trends in chemical fibers. Fibers from natural and synthetic polymers. Fiber formation, their characteristics, and applications. Rheology of spinning fluids. Fiber structure formation in various formation methods.			x			x				
89	Modification of Chemical Fibres	The nature and purpose of fiber modification. Fiber modification methods. Development and application of next-generation fibers. Ultrathin fiber technology. Fibers with special properties and their applications.			x			x				
90	Artistic Aspects of Textile Printing and Dyeing	Artistic graphic techniques in textile printing. Artistic textile dyeing techniques. Print design preparation.						x				
91	Chemistry of Dyes and Auxiliaries	Quality control of basic dye forms. Dyes in the textile industry. Surface active agents. Bleaching and auxiliary agents. Finishing agents and additives. Pro ecological design of chemical fiber processing.			x							
92	Technologies of Textile Finishing	Textile pretreatment and bleaching. Textile dyeing. Printing technologies. Machines and devices for mechanical and chemical fiber processing.			x			x				
93	Textile Enhancement	Textile preservation. Chemical textile finishing. Physicochemical textile finishing. Water and wastewater technology.			x			x				
94	Design of Chemical and Physicochemical Processes in Textiles	Designing a chemical or physicochemical process of transformation in a material. Property modification, imparting new characteristics to the material. Process design.						x	x		x	x
95	Colour Measurements	Fundamentals of objective colour description in accordance with standards applicable to the textile industry, including spectrophotometric measurements.			x			x				
96	Humanoecology of Textile Chemical Processes	Impact of production processes in textile plants on the natural environment. Possibilities of process optimization. Harmful substances in fibers and textile products.			x			x				

ECTS - subjects

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
1	Mathematics I	8				
2	Physics I	2				
3	Introduction to Textiles	7			7	
4	Elements of Creative Design	2	2			
5	Engineering Drawing	3				
6	General Chemistry	4				
7	Electrical and Electronic Engineering	4				
8	Mathematics II	6				
9	Physics II	2				
10	Basics of Physical and Organic Chemistry	6			6	
11	Information Technologies 1	3				
12	Textile Metrology and Standarization	11			11	
13	English n. B2 module I	2		2		
14	English n. B2+ module I	2		2		
15	English n. C1 module I	2		2		
16	Technical Mechanics	4				
17	Mechanical Textile Technologies	10			10	
18	Basics of Nonwovens and Fibrous Composites	3			3	
19	Chemical Textile Technologies	7			7	
20	Clothing Technology	4			4	

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
21	English n. B2 module II	2		2		
22	English n. B2+ module II	2		2		
23	English n. C1 module II	2		2		
24	Basics of Automation and Textronics	5				
25	Basics of Machine Design and Operation	5				
26	Mechanics of Textiles and Textile Composites	3			3	
27	Fundamentals of Textile Care	2			2	
28	Information Technologies 2	3			3	
29	Basics of 3D Printing	2			2	2
30	Elements of Project Management	8				
31	English n.B2 module III	2		2		
32	English n. B2+ module III	2		2		
33	English n. C1 module III	2		2		
34	Material Designing of Clothing	5		5	5	
35	Clothing Design and Modeling	7		7	7	
36	Specialized Clothing	2		2	2	
37	Technology of Clothing Products	8		8	8	
38	Organization of the clothing production process	2		2	2	
39	Internship PITT	3		3		
40	Internship PChPW	3		3		
41	Internship PIiTO	3		3		

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
42	English n. B2 module IV	3		3		
43	English n. B2+ module IV	3		3		
44	English n. C1 module IV	3		3		
45	Implementation of Clothing Design Projects	10		10	10	
46	Design and Technology of Knitted Clothing	7		7	7	
47	Design of Clothing for Fashion Industry and Technical Purposes	7		7	7	
48	Textile Marketing	2	2			
49	Safety of Work and Ergonomics	2	2			
50	Choice Questions of Mechanical Engineering of Textiles	2		2	2	
51	Surface, Sorption and Diffusion Phenomena in Chemical Finishing of Fibres	2		2	2	
52	Nanotechnologies in Textiles	2		2	2	
53	Special Polymers	2		2	2	
54	Innovative Technologies of Linear Textiles	2		2	2	
55	Development Trends in the Clothing Patterns Design	2		2	2	
56	Innovative Knitting Technologies	2		2	2	
57	Intelligent Textile Products	2		2	2	
58	The New Modified Fibres-Their Specific Esthetic and Functional Properties	2		2	2	
59	Selected Problems in Strength of Materials	2		2	2	
60	Diagnostics and Ergonomics of Textile Objects	2		2	2	
61	Enlargement of the European Internal Market - Possibilities for SMEs	2		2	2	
62	Technology of Functinal Nonwovens Materials	2		2	2	

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
63	Sewing Treads Structure ad Properties	2		2	2	
64	Creative Design in the Circular Economy	4	4			
65	Textile Metrology	2		2	2	
66	Spinning Technologies	2		2	2	
67	Weaving Technolgies	2		2	2	
68	Knitting Technologies	2		2	2	
69	Technology of Nonwovens	2		2	2	
70	Clothing Technology	2		2	2	
71	Textile Finishing	2		2	2	
72	Technologies of Chemical Fibres	2		2	2	
73	Mechanics of Textiles	2		2	2	
74	Diploma Seminar	2				
75	Graduation Internship	3				
76	Final Project	15		15	15	
77	Architectural Textile Design	2		2	2	
78	Material Trends in the Textile Industry	4		4	4	
79	Design and Technology of Linear Textile Products	8		8	8	
80	Design and Technology of Nonwoven Products	8		8	8	
81	Design of Knitted Structures and Properties	2		2	2	
82	Design and Technology od Knitted Fabrics	8		8	8	
83	Design and Technology of Woven Fabrics	9		9	9	

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
84	Design of Textile Product for Technical Purposes and for Fashion Industry	7		7	7	
85	Design and Technical Knitted Fabrics	2		2	2	
86	Woven Technologies for Composites	2		2	2	
87	Structure and Properties of Polymers	9		9	9	
88	Technology of Chemical Fibres	7		7	7	
89	Modification of Chemical Fibres	4		4	4	
90	Artistic Aspects of Textile Printing and Dyeing	2		2	2	
91	Chemistry of Dyes and Auxiliaries	2		2	2	
92	Technologies of Textile Finishing	9		9	9	
93	Textile Enhancement	8		8	8	
94	Design of Chemical and Physicochemical Processes in Textiles	7		7	7	
95	Colour Measurements	2		2	2	
96	Humanoecology of Textile Chemical Processes	2		2	2	

ECTS indicators

Name	Diploma Path: Clothing Engineering	Diploma Path: Innovative Textile Technologies	Diploma Path: Textile Design Engineering
The total number of ECTS credits that a student must obtain through elective courses (amounting to no less than 30% of the total ECTS credits required to obtain the qualification corresponding to the given level of study)	83/210 (39.52%)	83/210 (39.52%)	83/210 (39.52%)
The total number of ECTS credits to be earned by a student through courses in the fields of humanities or social sciences	10	10	10
The total number of ECTS credits that a student must obtain from courses related to research conducted at the university, amounting to more than 50% of the total ECTS credits required to graduate from a given level of study	129/210 (61.43%)	129/210 (61.43%)	129/210 (61.43%)

Methods of verifying and assessing learning outcomes

Verifying achieved learning outcomes requires the use of diverse forms of student assessment, appropriate to the categories of knowledge, skills, and social competences to which these outcomes pertain. The selection of appropriate tools also depends on the specific nature of the subject and the format of instruction and is described in each individual course card. Achievement of the required learning outcomes is verified through:

1. written works (exams, tests, reports, essays, projects, posters, diploma thesis, etc.);

2. oral presentations (oral knowledge tests, public speaking, e.g. delivering a lecture, presentation, etc.);

3. practical and/or project tasks (team and individual);

4. observation and assessment of student activity during classes;

5. self-assessment and peer assessment of students (especially in the case of team projects);

6. competency examination and diploma examination.

Assessment may be formative (partial, repeated throughout the course) and/or summative (final grade). The final assessment result is given on the currently applicable grading scale.

During the first class of the subject, the course leader or lecturer is obliged to discuss the course card and to formulate and document the methods of verification and conditions for conducting tests to ensure that learning outcomes are achieved.

Professional internships

Internship duration: 6 weeks.

ECTS points obtained: 6

Internships carried out in accordance with the study program in a form adapted to the profile and specificity

field of study and according to the rules specified at the faculty and the University.

Specializations/degree paths offered within the study program

Diploma Path: Clothing Engineering

Diploma Path: Innovative Textile Technologies

Diploma Path: Textile Design Engineering

Characteristics of the course

Graduate profile

Graduates of the Textile and Fashion Industry program, having acquired interdisciplinary knowledge in engineering and technical sciences, particularly materials science, but also in chemistry, mechanics, electrical engineering and electronics, textronics , and many others, are well-prepared, both theoretically and practically, for work in industries utilizing the achievements of materials science and related sciences, primarily in the textile and apparel industries. Graduates possess the skills to create and market new products and the ability to identify, evaluate, and classify innovative textile and apparel products. They are also well-prepared for industrial design and the production of textile raw materials and products for technical and fashion industry purposes, including the use of advanced CAD/CAM techniques to support the production and design process. Graduates are comprehensively prepared for work in the manufacturing industry, research, control, and diagnostic laboratories, trade and services, and education. They are able to work with modern raw materials and textile materials, employing modern techniques and technologies, and technologically advanced research equipment. They are prepared to develop their professional skills, including continuing their studies in a second-cycle program. Graduates also possess the knowledge, skills, and competencies necessary to run their own business. They demonstrate knowledge and skills in identifying the needs of textile and clothing users, taking into account cultural aspects, traditions, habits, the environment, and climatic conditions, as well as incorporating humanistic aspects as essential to improving the relationship between the designer, manufacturer, and user.

The relationship between the field of study and the university's strategy

The main theme of the Strategy of Lodz University of Technology (TUL) is COOPERATION, and one of its pillars is EDUCATION

(https://p.lodz.pl/sites/default/files/2025-01/strategia-politechniki-lodzkiej-2025-2030.pdf).

The Textile and Fashion Industry curriculum aligns with TUL's strategy of educating students to meet the economic needs of local, regional, and national communities. In particular, the program aligns with the strategic goal of preparing graduates for the dynamically changing needs of the socio-economic environment. The knowledge, skills, and competencies acquired during the studies ensure the development of highly qualified graduates who will meet market demands.

The study program includes numerous activities designed to develop students' practical skills: laboratories, projects, seminars , as well as social competences through the implementation of selected tasks in a team manner.

One of the key elements of the university's strategy is the development of modern technologies and their implementation in collaboration with the industrial sector. The Textile and Fashion Industry program pursues this goal by organizing student internships in textile and clothing companies, production, design, and service companies, as well as research institutes, which increases graduates' employability.

Lodz University of Technology's strategy incorporates sustainable development, which is particularly important in the context of the textile industry, which is considered one of the industries that significantly contributes to environmental threats. The curriculum incorporates, to a greater extent than before, content related to sustainable development, including subjects such as Creative Design in a Circular Economy, Introduction to Textiles, and Human-Ecological Aspects in Textile Process Design.

Educational objectives and employment and continuing education opportunities

The strategic goal of the Textile and Fashion Industry curriculum is to educate highly qualified personnel for the textile and clothing industry. This is possible thanks to an interdisciplinary curriculum that leverages the research and teaching potential of the Faculty of Textiles and Design at Lodz University of Technology. A six-week internship prepares graduates for the demanding job market and fosters strong industry connections, leading to attractive employment opportunities after graduation.

Graduates of first-cycle engineering studies possess knowledge and skills in the field of innovative textiles and the fashion industry. Depending on their chosen specialization, they acquire in-depth knowledge in the design and technology of clothing for the fashion industry and for technical purposes, the design and technology of technical textiles and the fashion industry, and the design of chemical processes in the textile and fashion industries.

Textile Design and Technology specialization will acquire knowledge, artistic sensitivity and skills in the field of construction, design and technology of yarns, fabrics, knitted fabrics and nonwovens, as well as the ability to perform metrological assessment of textiles.

Graduates of the Design of Chemical Textile Processes specialization will acquire knowledge and skills in the construction and technology of synthetic fibers, dyeing processes, and mechanical and chemical refining and finishing of textiles. Graduates of the Clothing Design and Technology specialization will acquire knowledge and skills in the design, technology, and materials of clothing design, construction of sewing machines, organization of textile packaging processes, design and modeling of clothing forms, and computer techniques in the fashion industry.

Depending on the completion of a given specialization, graduates are prepared to work in:

small, medium and large textile enterprises producing technical textiles for applications including medicine, transport, construction and textiles for the fashion industry,
small, medium and large enterprises in positions related
to the production and processing of chemical and natural fibers,
dyeing houses and small, medium and large finishing plants in the textile industry,
small, medium and large textile enterprises dealing with the packaging of textiles for the fashion industry and for technical purposes, in analytical laboratories and quality control and certification of textile and clothing products,
control and measurement units, research and development centers and consulting and design units, in textile accreditation and certification units and laboratories, in textile industry production plants in quality control and product research and development departments.

Description of the process and outcome of consultations on the proposed study program with the socio-economic environment

The Business Council positively evaluates the revised study program in the Textiles and Fashion Industry (undergraduate program), deeming it coherent, modern, and well-adapted to the current needs of the textile, apparel, and fashion industries.
The program comprehensively combines topics related to textile technology, textile and apparel design, and the organization of production processes, responding to the challenges of developing modern technologies, the digitization of industrial processes, and the growing importance of sustainable development principles in the fashion and textile sector. The Council particularly appreciates the high proportion of practical, laboratory, and design classes, which enable students to acquire the technical and organizational competencies expected by employers and prepare graduates for work in enterprises in the textile and apparel industry. Therefore, the Business Council expresses a clearly positive opinion and recommends the adoption of the study program in the Textiles and Fashion Industry (undergraduate program).

Description of competencies expected from a candidate applying for admission to studies

not applicable

The unit organizing education

Faculty of Textiles and Design

Education program

Semester 1

Course	Number of hours	ECTS points	Form of verification	Obligatory
Mathematics I	Tutorials: 40 Lecture: 13	8	Graded assignment	Obligatory
Physics I	Tutorials: 8 Lecture: 7	2	Graded assignment	Obligatory
Introduction to Textiles	Laboratory classes: 20 Lecture: 28	7	Exam	Obligatory
Elements of Creative Design	Tutorials: 8 Lecture: 7	2	Graded assignment	Obligatory
Engineering Drawing	Laboratory classes: 13 Lecture: 5	3	Graded assignment	Obligatory
General Chemistry	Tutorials: 8 Laboratory classes: 13 Lecture: 7	4	Exam	Obligatory
Electrical and Electronic Engineering	Tutorials: 8 Laboratory classes: 8 Lecture: 7	4	Exam	Obligatory
Sum	**200**	**30**		

Semester 2

Course	Number of hours	ECTS points	Form of verification	Obligatory
Mathematics II	Tutorials: 15 Lecture: 15	6	Exam	Obligatory
Physics II	Laboratory classes: 15	2	Graded assignment	Obligatory

Course	Number of hours	ECTS points	Form of verification	Obligatory
Basics of Physical and Organic Chemistry	Laboratory classes: 25 Lecture: 15	6	Exam	Obligatory
Information Technologies 1	Laboratory classes: 15 E-learning: 8	3	Graded assignment	Obligatory
Textile Metrology and Standarization	Laboratory classes: 47 Lecture: 25	11	Exam	Obligatory
Foreign Language n. module 1		2	Graded assignment	Obligatory group
The student chooses one module from the group.				
English n. B2 module I	Tutorials: 20	2	Graded assignment	Optional
English n. B2+ module I	Tutorials: 20	2	Graded assignment	Optional
English n. C1 module I	Tutorials: 20	2	Graded assignment	Optional
Sum	**200**	**30**		

Semester 3

Course	Number of hours	ECTS points	Form of verification	Obligatory
Technical Mechanics	Tutorials: 14 Lecture: 13	4	Exam	Obligatory
Mechanical Textile Technologies	Laboratory classes: 45 Lecture: 20	10	Graded assignment	Obligatory
Basics of Nonwovens and Fibrous Composites	Laboratory classes: 14 Lecture: 7	3	Graded assignment	Obligatory
Chemical Textile Technologies	Laboratory classes: 30 Lecture: 15	7	Exam	Obligatory
Clothing Technology	Laboratory classes: 15 Lecture: 7	4	Exam	Obligatory
Foreign Language n. module 2		2	Graded assignment	Obligatory group

Course	Number of hours	ECTS points	Form of verification	Obligatory
The student chooses one module from the group.				
English n. B2 module II	Tutorials: 20	2	Graded assignment	Optional
English n. B2+ module II	Tutorials: 20	2	Graded assignment	Optional
English n. C1 module II	Tutorials: 20	2	Graded assignment	Optional
Sum	**200**	**30**		

Semester 4

Course	Number of hours	ECTS points	Form of verification	Obligatory
Basics of Automation and Textronics	Laboratory classes: 25 Lecture: 15	5	Exam	Obligatory
Basics of Machine Design and Operation	Tutorials: 12 Laboratory classes: 15 Lecture: 15	5	Graded assignment	Obligatory
Mechanics of Textiles and Textile Composites	Laboratory classes: 15 Lecture: 10	3	Graded assignment	Obligatory
Fundamentals of Textile Care	Lecture: 8	2	Graded assignment	Obligatory
Information Technologies 2	Laboratory classes: 15	3	Graded assignment	Obligatory
Basics of 3D Printing	Project work: 9 Lecture: 3	2	Graded assignment	Obligatory
Elements of Project Management	Tutorials: 10 Project work: 10 Lecture: 15	8	Graded assignment	Obligatory
Foreign Language n. module 3		2	Graded assignment	Obligatory group
The student chooses one module from the group.				
English n.B2 module III	Tutorials: 20	2	Graded assignment	Optional
English n. B2+ module III	Tutorials: 20	2	Graded assignment	Optional

Course	Number of hours	ECTS points	Form of verification	Obligatory
English n. C1 module III	Tutorials: 20	2	Graded assignment	Optional
Sum	**197**	**30**		

Semester 5

Course	Number of hours	ECTS points	Form of verification	Obligatory
Internship		3	Pass	Obligatory group
The student chooses the internship in accordance with the selected diploma track.				
Internship PITT	Internship: 0	3	Pass	Optional
Internship PChPW	Internship: 0	3	Pass	Optional
Internship PIiTO	Internship: 0	3	Pass	Optional
Foreign Language n. module 4		3	Exam	Obligatory group
The student chooses one module from the group.				
English n. B2 module IV	Tutorials: 20	3	Exam	Optional
English n. B2+ module IV	Tutorials: 20	3	Exam	Optional
English n. C1 module IV	Tutorials: 20	3	Exam	Optional
Sum	**20**	**6**		

Diploma Path: Innovative Textile Technologies

Course	Number of hours	ECTS points	Form of verification	Obligatory
Architectural Textile Design	Project work: 11	2	Graded assignment	Obligatory specialization courses

Course	Number of hours	ECTS points	Form of verification	Obligatory
Material Trends in the Textile Industry	Laboratory classes: 14 Lecture: 14	4	Graded assignment	Obligatory specialization courses
Design and Technology of Linear Textile Products	Laboratory classes: 22 Project work: 23 Lecture: 14	8	Exam	Obligatory specialization courses
Design and Technology of Nonwoven Products	Laboratory classes: 22 Project work: 27 Lecture: 14	8	Exam	Obligatory specialization courses
Design of Knitted Structures and Properties	Project work: 14 Lecture: 3	2	Graded assignment	Obligatory specialization courses
Sum	**178**	**24**		

Diploma Path: Textile Design Engineering

Course	Number of hours	ECTS points	Form of verification	Obligatory
Structure and Properties of Polymers	Laboratory classes: 42 Lecture: 37	9	Exam	Obligatory specialization courses
Technology of Chemical Fibres	Laboratory classes: 32 Lecture: 22	7	Exam	Obligatory specialization courses
Modification of Chemical Fibres	Laboratory classes: 9 Lecture: 18	4	Exam	Obligatory specialization courses
Artistic Aspects of Textile Printing and Dyeing	Project work: 9	2	Graded assignment	Obligatory specialization courses
Chemistry of Dyes and Auxiliaries	Lecture: 9	2	Graded assignment	Obligatory specialization courses
Sum	**178**	**24**		

Diploma Path: Clothing Engineering

Course	Number of hours	ECTS points	Form of verification	Obligatory
Material Designing of Clothing	Laboratory classes: 20 Lecture: 18	5	Exam	Obligatory specialization courses
Clothing Design and Modeling	Laboratory classes: 22 Project work: 28 Lecture: 10	7	Exam	Obligatory specialization courses
Specialized Clothing	Lecture: 10	2	Graded assignment	Obligatory specialization courses
Technology of Clothing Products	Laboratory classes: 23 Project work: 14 Lecture: 25	8	Exam	Obligatory specialization courses
Organization of the clothing production process	Project work: 4 Lecture: 4	2	Graded assignment	Obligatory specialization courses
Sum	**178**	**24**		

Semester 6

Course	Number of hours	ECTS points	Form of verification	Obligatory
Textile Marketing	Tutorials: 8 Lecture: 7	2	Exam	Obligatory
Safety of Work and Ergonomics	Lecture: 7	2	Graded assignment	Obligatory
Elective Courses 1		2	Graded assignment	Obligatory group
The student chooses 1 course from the group.				
Choice Questions of Mechanical Engineering of Textiles	Lecture: 14	2	Graded assignment	Optional

Course	Number of hours	ECTS points	Form of verification	Obligatory
Surface, Sorption and Diffusion Phenomena in Chemical Finishing of Fibres	Lecture: 14	2	Graded assignment	Optional
Nanotechnologies in Textiles	Lecture: 14	2	Graded assignment	Optional
Special Polymers	Lecture: 14	2	Graded assignment	Optional
Innovative Technologies of Linear Textiles	Lecture: 14	2	Graded assignment	Optional
Development Trends in the Clothing Patterns Design	Lecture: 14	2	Graded assignment	Optional
Innovative Knitting Technologies	Lecture: 14	2	Graded assignment	Optional
Intelligent Textile Products	Lecture: 14	2	Graded assignment	Optional
The New Modified Fibres-Their Specific Esthetic and Functional Properties	Lecture: 14	2	Graded assignment	Optional
Selected Problems in Strength of Materials	Lecture: 14	2	Graded assignment	Optional
Diagnostics and Ergonomics of Textile Objects	Lecture: 14	2	Graded assignment	Optional
Enlargement of the European Internal Market - Possibilities for SMEs	Lecture: 14	2	Graded assignment	Optional
Sum	**36**	**6**		

Diploma Path: Innovative Textile Technologies

Course	Number of hours	ECTS points	Form of verification	Obligatory
Design and Technology od Knitted Fabrics	Laboratory classes: 20 Project work: 14 Lecture: 12	8	Exam	Obligatory specialization courses
Design and Technology of Woven Fabrics	Laboratory classes: 30 Project work: 20 Lecture: 23	9	Exam	Obligatory specialization courses
Design of Textile Product for Technical Purposes and for Fashion Industry	Project work: 45	7	Graded assignment	Obligatory specialization courses
Sum	**164**	**24**		

Diploma Path: Textile Design Engineering

Course	Number of hours	ECTS points	Form of verification	Obligatory
Technologies of Textile Finishing	Laboratory classes: 21 Project work: 21 Lecture: 20	9	Exam	Obligatory specialization courses
Textile Enhancement	Tutorials: 5 Laboratory classes: 27 Lecture: 25	8	Exam	Obligatory specialization courses
Design of Chemical and Physicochemical Processes in Textiles	Project work: 45	7	Graded assignment	Obligatory specialization courses
Sum	**164**	**24**		

Diploma Path: Clothing Engineering

Course	Number of hours	ECTS points	Form of verification	Obligatory
Implementation of Clothing Design Projects	Laboratory classes: 7 Project work: 65 Lecture: 5	10	Graded assignment	Obligatory specialization courses
Design and Technology of Knitted Clothing	Laboratory classes: 35 Lecture: 7	7	Graded assignment	Obligatory specialization courses
Design of Clothing for Fashion Industry and Technical Purposes	Project work: 45	7	Graded assignment	Obligatory specialization courses
Sum	**164**	**24**		

Semester 7

Course	Number of hours	ECTS points	Form of verification	Obligatory
Creative Design in the Circular Economy	Tutorials: 10 Project work: 25 Lecture: 20	4	Exam	Obligatory
Elective Courses 2		2	Graded assignment	Obligatory group
The student chooses 1 course from the group.				
Textile Metrology	Project work: 10	2	Graded assignment	Optional
Spinning Technologies	Project work: 10	2	Graded assignment	Optional
Weaving Technolgies	Project work: 10	2	Graded assignment	Optional
Knitting Technologies	Project work: 10	2	Graded assignment	Optional
Technology of Nonwovens	Project work: 10	2	Graded assignment	Optional
Clothing Technology	Project work: 10	2	Graded assignment	Optional
Textile Finishing	Project work: 10	2	Graded assignment	Optional
Technologies of Chemical Fibres	Project work: 10	2	Graded assignment	Optional
Mechanics of Textiles	Project work: 10	2	Graded assignment	Optional
Diploma Seminar	Seminar: 20	2	Graded assignment + exam	Obligatory
Graduation Internship	Internship: 0	3	Pass	Obligatory
Final Project	Diploma Thesis: 0	15	Pass	Obligatory subjects to choose from
Sum	**85**	**26**		

Diploma Path: Innovative Textile Technologies

Course	Number of hours	ECTS points	Form of verification	Obligatory
Design and Technical Knitted Fabrics	Project work: 10 Lecture: 5	2	Graded assignment	Obligatory specialization courses

Course	Number of hours	ECTS points	Form of verification	Obligatory
Woven Technologies for Composites	Project work: 8 Lecture: 5	2	Graded assignment	Obligatory specialization courses
Sum	**28**	**4**		

Diploma Path: Textile Design Engineering

Course	Number of hours	ECTS points	Form of verification	Obligatory
Colour Measurements	Laboratory classes: 7 Lecture: 6	2	Graded assignment	Obligatory specialization courses
Humanoecology of Textile Chemical Processes	Laboratory classes: 7 Lecture: 8	2	Graded assignment	Obligatory specialization courses
Sum	**28**	**4**		

Diploma Path: Clothing Engineering

Course	Number of hours	ECTS points	Form of verification	Obligatory
Technology of Functinal Nonwovens Materials	Laboratory classes: 7 Lecture: 6	2	Graded assignment	Obligatory specialization courses
Sewing Treads Structure ad Properties	Laboratory classes: 7 Lecture: 8	2	Graded assignment	Obligatory specialization courses
Sum	**28**	**4**		