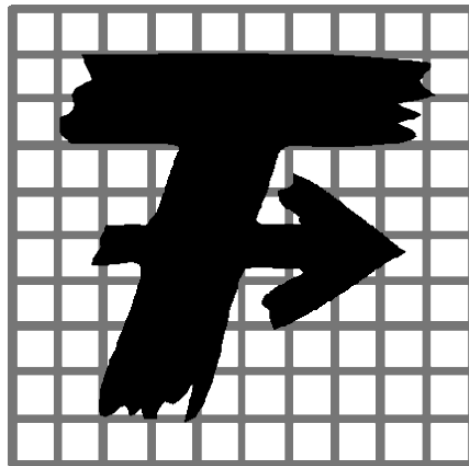


Technical University of Liberec
FACULTY OF TEXTILE ENGINEERING

ACADEMIC STUDY PROGRAMMES

fully accredited in English language



2007

Hálkova 6, 461 17 Liberec
Czech Republic

tel.: 485 351 111, fax: 485 353 542
<http://www.ft.vslib.cz/>

A. Bachelor studies TEXTILE “B.Sc.”

Full-time, part-time, 3 years

Study branches

Textile Materials and Testing
Technical Textiles
Chemical Textile Technology
Mechanical Textile Technology
Non-wovens
Technology and Control of Clothing Production
Textile Marketing
Textile and Fashion Design (only in Czech Language)

B. Master studies TEXTILE ENGINEERING “M.Sc.”

Full-time, part-time, 2 years

Study branches

Textile and Clothing Technology
Textile and Material Engineering

C. Doctoral studies TEXTILE ENGINEERING “Ph.D.”

Full-time, part-time, 3 years

Study branches

Textile and Material Engineering
Textile Technology

GENERAL INFORMATION

Limit 10 students

The students who decide to study in English language have to pay a tuition fee.

The entrance examinations are held in June for enrolment in the next academic year. The deadline of application is March 31. The Faculty of Textile Engineering requests the admission fee approximately per 1 student a year: 3000,- Euro

Accommodation and boarding

The students have to make allowances for the following personal expenses per month:

- Accommodation in student halls of Residence
- 30 USD/month
- Board in the student dining hall
- 40 USD/month – 2 meals a day

Recommendation for foreign applicants

International students who would like to study in Czech Republic have to hold a valid passport and they need a long-term visa. According to a new regulation the students can apply for a study visa (visa over 90 days) at the Czech Embassy or Consulate in their home country.

Passing the courses: with examination: Cex – combined (written + oral) exam; without examination:
Pr – project; Te – test.

Bachelor studies TEXTILE “B.Sc.”

Study branche: Mechanical Textile Technology

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Mathematics 1	2+2		Cex	6
Textile Fibres	2+2		Cex	6
Basics of Textile and Cloth. Production	3+1		Cex	5
Physics	2+2		Cex	6
Spinning	2+2		Cex	6
Mathematics 2		2+2	Cex	6
Mechanics		2+2	Cex	4
Weaving		2+2	Cex	6
Knitting		2+2	Cex	6
Cotton and Wool Type Spinning		2+2	Cex	6
Physical Education		0+2	Pr	1
Compulsory Courses - 2nd year	Winter	Summer	Passing	Credits
Machine Parts.	2+2		Cex	5
Nonwoven Manufacture	2+2		Cex	6
Weaving Machines and Technology	2+2		Cex	6
Weft Knitting	2+2		Cex	6
Language	0+2		Pr	3
Physical Education	0+2		Pr	1
Textile Testing		2+2	Cex	5
Power Electronics		2+4	Cex	6
Warp Knitting		2+2	Cex	6
Working Practice		0+2	Pr	5
Language		0+2	Cex	3
Compulsory Courses - 3rd year	Winter	Summer	Passing	Credits
Structure and Properties of Textiles	2+2		Cex	6
Programming in MATLAB	1+1		Cex	5
Chemistry	2+3		Cex	6
Textile Finishing	3+2		Cex	5
Production of Garments	2+2		Cex	6
Batchelor Work	0+8		Pr	8
Batchelor Work		0+8	Pr	10
Facultative Courses - specialization (student chooses 3)	Winter	Summer	Passing	Credits
Patterning of Fabrics	2+2		Cex	6
Structures and Pattern of Knitted Fabric	2+2		Cex	6
Special Spinning Technologies	2+2		Cex	6
Special Weaving Technologies		2+2	Cex	6
Special Knitting Technologies		2+2	Cex	6
Special Fibres		2+2	Cex	6
Facultative Courses - economics (student chooses 1)	TABLE 1			

Bachelor studies TEXTILE “B.Sc.”
Study branche: Non-wovens

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Mathematics 1	2+2		Cex	6
Textile Fibres	2+2		Cex	6
Basics of Textile and Cloth. Production	3+1		Cex	5
Chemistry	2+3		Cex	6
Nonwoven Manufacture	2+2		Cex	6
Mathematics 2		2+2	Cex	6
Textile Chemistry		2+2	Cex	6
Spinning		2+2	Cex	6
Weaving		2+2	Cex	6
Technical Textiles		2+2	Cex	6
Physical Education		0+2	Pr	1
Compulsory Courses - 2 nd year	Winter	Summer	Passing	Credits
Physics	2+2		Cex	6
Knitting	2+2		Cex	6
Mech. Technol. of Nonwovens Production	2+2		Cex	6
Language	0+2		Pr	3
Physical Education	0+2		Pr	1
Mechanics		2+2	Cex	4
Thermal - Chemical Technol. of Nonwovens		3+2	Cex	6
Textile Testing		2+2	Cex	5
Power Electronics		2+4	Cex	6
Language		0+2	Cex	3
Compulsory Courses - 3 rd year	Winter	Summer	Passing	Credits
Structure and Properties of Textiles	2+2		Cex	6
Programming in MATLAB	1+1		Cex	5
Textile Finishing	3+2		Cex	5
Production of garments	2+2		Cex	6
Polymer Bonding Agents	2+2		Cex	6
Processing of the Secondary Raw Material	2+2		Cex	6
Batchelor Work	0+8		Pr	8
Nanomaterials		2+2	Cex	6
Batchelor Work		0+8	Pr	10
Facultative Courses - economics (student chooses 1)			TABLE 1	
Facultative Courses - philosophical, humane (student chooses 1)			TABLE 2	

Bachelor studies TEXTILE “B.Sc.”

Study branche: Chemical Textile Technology

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Mathematics 1	2+2		Cex	6
Basics of Textile and Clothing Production	3+1		Cex	5
Textile Fibres	2+2		Cex	6
Chemistry	2+3		Cex	6
Physics	2+2		Cex	6
Mathematics 2		2+2	Cex	6
Mechanics		2+2	Cex	4
Textile Chemistry		2+2	Cex	6
Spinning		2+2	Cex	6
Weaving		2+2	Cex	6
Physical Education		0+2	Pr	1
Compulsory Courses - 2nd year	Winter	Summer	Passing	Credits
Knitting	2+2		Cex	6
Nonwoven Manufacture	2+2		Cex	6
Textile Finishing	3+2		Cex	5
Pretreatment of Textiles	2+2		Cex	6
Language	0+2		Pr	3
Physical Education	0+2		Pr	1
Power Electronics		2+4	Cex	6
Textile Testing		2+2	Cex	5
Dyeing of Textiles		2+2	Cex	6
Finale Finishes of Textiles		2+2	Cex	6
Language		0+2	Cex	3
Compulsory Courses - 3rd year	Winter	Summer	Passing	Credits
Structure and Properties of Textiles	2+2		Cex	6
Programming in MATLAB	1+1		Cex	5
Production of Garments	2+2		Cex	6
Printing of Textiles	2+2		Cex	6
Textile Chemical Analyses	2+4		Cex	6
Batchelor Work	0+8		Pr	16
Laboratory Practice		0+4	Pr	2
Batchelor Work		0+8	Pr	30
Facultative Courses - economics (student chooses 1)			TABLE 1	
Facultative Courses - philosophical, humane (student chooses 1)			TABLE 2	

Bachelor studies TEXTILE “B.Sc.”**Study branche: Technology and Control of Clothing Production**

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Mathematics 1	2+2		Cex	6
Physics	2+2		Cex	6
Technical Drawing	2+2		Cex	3
Basics of Textile and Clothing Production	3+1		Cex	5
Textile Fibres	2+2		Cex	6
Mathematics 2		2+2	Cex	6
Mechanics		2+2	Cex	6
Production of Garments		2+2	Cex	6
Textile Testing		2+2	Cex	5
Clothes Construction		2+2	Cex	6
Physical Education		0+2	Pr	1
Compulsory Courses - 2 nd year	Winter	Summer	Passing	Credits
Structure and Properties of Textiles	2+2		Cex	6
Textile Finishing	3+2		Cex	5
Technology of Garment Manufacture	2+2		Cex	6
Language	0+2		Pr	3
Physical Education	0+2		Pr	1
Technical Preparation of the Production		2+2	Cex	6
History of Clothing Culture		2+2	Cex	6
Machines of Clothing Production		2+2	Cex	6
Language		0+2	Cex	3
Compulsory Courses - 3 rd year	Winter	Summer	Passing	Credits
Programming in MATLAB	1+1		Cex	5
Batchelor Work	0+8		Pr	8
CAD/CAM Systems in Apparel Production		2+2	Cex	6
Batchelor Work		0+8	Pr	10

Facultative Courses - specialization (student pass 3)	Winter	Summer	Passing	Credits
Knitting	2+2		Cex	6
Nonwoven Manufacture	2+2		Cex	6
Technological Projects	1+3		Cex	4
Knowledge of Textile Goods	2+4		Cex	6
Spinning		2+2	Cex	6
Weaving		2+2	Cex	6
Technical Textiles		2+2	Cex	6
Facultative Courses - specialization (student passes 1)	Winter	Summer	Passing	Credits
Some Articles from the Cloth. Production	0+2		Cex	0
Technical Textiles Production	2+2		Cex	6
Basics of Colouristic	2+1		Cex	6
Garment pattern and modelling	1+2		Cex	6
Facultative Courses - economics (student chooses 1)			TABLE 1	
Facultative Courses - philosophical, humane (student chooses 1)			TABLE 2	

Bachelor studies TEXTILE “B.Sc.”

Study branche: Textile Materials and Testing

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Mathematics 1	2+2		Cex	6
Basics of Textile and Cloth. Production	3+1		Cex	5
Textile Fibres	2+2		Cex	6
Chemistry	2+3		Cex	6
Basics of Colouristic	2+1		Cex	6
Mathematics 2		2+2	Cex	6
Textile Chemistry		2+2	Cex	6
Spinning		2+2	Cex	6
Weaving		2+2	Cex	6
Technical Textiles		2+2	Cex	6
Physical Education		0+2	Pr	1
Compulsory Courses - 2 nd year	Winter	Summer	Passing	Credits
Physics	2+1		Cex	6
Knitting	2+1		Cex	6
Nonwoven Manufacture	2+2		Cex	6
Processing of the Secondary Raw Material	2+2		Cex	6
Special Fibres	2+2		Cex	6
Language	0+2		Pr	3
Physical Education	0+2		Pr	1
Textile Testing		2+2	Cex	5
Mechanics		2+2	Cex	6
Power Electronics		2+4	Cex	6
Knowledge of Textile Goods		2+4	Cex	6
Language		0+2	Cex	3
Compulsory Courses - 3 rd year	Winter	Summer	Passing	Credits
Structure and Properties of Textiles	2+2		Cex	6
Programming in MATLAB	1+1		Cex	5
Textile Finishing	3+2		Cex	5
Production of garments	2+2		Cex	6
Textile chemical analyses	4+4		Cex	6
Batchelor Work	0+8		Pr	8
Quality Evaluation		2+2	Cex	5
Nanomaterials		2+2	Cex	6
Batchelor Work		0+8	Pr	10
Facultative Courses - economics (student chooses 1)	TABLE 1			
Facultative Courses - philosophical, humane (student chooses 1)	TABLE 2			

Bachelor studies TEXTILE “B.Sc.”**Study branche: Technical Textiles**

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Mathematics 1	2+2		Cex	6
Basics of Textile and Cloth. Production	3+1		Cex	5
Textile Fibres	2+2		Cex	6
Chemistry	2+3		Cex	6
Spinning	2+2		Cex	6
Mathematics 2		2+2	Cex	6
Textile Chemistry		2+2	Cex	6
Weaving		2+2	Cex	6
Knitting		2+3	Cex	6
Technical Textiles		2+2	Cex	6
Physical Education		0+2	Pr	1
Compulsory Courses - 2nd year	Winter	Summer	Passing	Credits
Physics	2+2		Cex	6
Nonwoven Manufacture	2+2		Cex	6
Special Fibres	2+2		Cex	6
Language	0+2		Pr	3
Physical education	0+2		Pr	1
Textile Testing		2+2	Cex	5
Mechanics		2+2	Cex	6
Power Electronics		2+4	Cex	6
Language		0+2	Cex	3
Compulsory Courses - 3rd year	Winter	Summer	Passing	Credits
Structure and Properties of Textiles	2+2		Cex	6
Programming in MATLAB	1+1		Cex	5
Textile Finishing	3+2		Cex	5
Production of Garments	2+2		Cex	6
Textile Chemical Analyses	4+4		Cex	6
Batchelor Work	0+8		Pr	8
Batchelor Work		0+8	Pr	10

Facultative Courses - specialization (student pass 4)	Winter	Summer	Passing	Credits
Polymer Bonding Agents	2+2		Cex	6
Processing of the Secondary Raw Material	2+2		Cex	6
Special Weaving Technologies	2+2		Cex	6
Special Knitting Technologies	2+2		Cex	6
Technical Textiles Production	2+2		Cex	6
Nanomaterials		2+2	Cex	6
Special Spinning Technologies		2+2	Cex	6
Patterning of Fabrics		2+2	Cex	6
Finale Finishes of Textiles		2+2	Cex	6
Facultative Courses - economics (student chooses 1)	TABLE 1			
Facultative Courses - philosophical, humane (student chooses 1)	TABLE 2			

Bachelor studies TEXTILE “B.Sc.”

Study branche: Textile Marketing

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Mathematics 1	2+2		Cex	6
Macroeconomics	2+2		Cex	4
Basics of Textile and Cloth. Production	3+1		Cex	5
Spinning	2+2		Cex	6
Processing of Technical Textiles	1+2		Pr - Te	3
Language 1	0+2		Pr	3
Mathematics 2		2+2	Cex	6
Microeconomics		2+2	Cex	4
Textiles and Technology		2+2	Cex	5
Computer Application in Office Work		2+2	Cex	3
Language 1		0+2	Cex	3
Physical Education		0+2	Pr	1
Compulsory Courses - 2nd year	Winter	Summer	Passing	Credits
Economic Policy	2+0		Cex	4
Marketing	2+2		Cex	5
Textile Finishing	3+2		Cex	5
Knowledge of Textile Goods 1	2+2		Cex	5
Language 2	0+2		Pr	3
Physical Education	0+2		Pr	1
Production of Garments		2+2	Cex	6
E-commerce		1+3	Pr - Te	3
Textile Testing		2+2	Cex	5
Knowledge of Textile Goods 2		2+4	Cex	5
Strategic Marketing		2+1	Cex	4
Language 2		0+2	Cex	3
Compulsory Courses - 3rd year	Winter	Summer	Passing	Credits
Knowledge of Textile Goods 3	1+2		Cex	5
Quality Evaluation	2+2		Cex	5
Comfort of Textiles	2+2		Cex	8
Marketing Research	2+2		Cex	7
Essentials of Accounting	2+2		Cex	5
Batchelor Work	0+8		Pr	8
Strategy of Textile Goods Sale		2+2	Cex	6
Batchelor Work		0+8	Pr	8
Facultative Courses - economics (student chooses 2)				TABLE 1
Facultative Courses - philosophical, humane (student chooses 2)				TABLE 2

TABLE 1				
Facultative Courses - economics	Winter	Summer	Passing	Credits
Introduction to Management	2+2		Cex	4
Economy and Management of Enterprises	2+2		Cex	6
Business Economics		2+2	Cex	6
Small and Medium-sized Enterprising		2+1	Cex	4

TABLE 2				
Facultative Courses - philosophical, humane	Winter	Summer	Passing	Credits
Sociology		2+2	Cex	4
Communication Skills		1+2	Pr - Te	4
Heads of Design		2+2	Cex	5
Principles of Critical Thinking		2+0	Pr - Te	2

Master studies TEXTILE ENGINEERING “M.Sc.”

Study branche: Textile and Material Engineering

Specialization: Textile and Material Engineering

Specialization: Non-woven Textiles

Specialization: Quality Control

Compulsory Courses - 1st year	Winter	Summer	Passing	Credits
Applied Mathematics	4+2		Cex	
Experimental Data Treatment	2+2		Cex	6
Textile Metrology	2+2		Cex	6
High-functional Textiles		2+2	Cex	6
Textile physics <i>or</i> Physical Chemistry		2+2	Cex	6
Compulsory Courses - 2 nd year	Winter	Summer	Passing	Credits
Methods of Stoch. and Simul. Modelling	2+2		Cex	6
Textile Engineering	2+0		Cex	6
Diploma Theses 1	0+4		Pr	8
Ecological Aspects of Textile Processes		2+1	Cex	6
Quality Control		2+2	Cex	6
Introduction to Law		2+0	Cex	4
Diploma Theses 2		0+4	Pr	8

Specialization: Textile and Material Engineering

Compulsory Courses – Textile and Material Engineering	Winter	Summer	Passing	Credits
Composites with Textile Reinforcement	2+2		Cex	6
Modeling of Fibrous Structures	2+1		Cex	6
Colour Measurement		2+2	Cex	6
Analyses of Textile Structures		2+2	Cex	6
Methods of termic analysis		2+2	Cex	6
Properties of Fibres	2+2		Cex	6
Facultative Courses - student chooses 4 (rules page XX)				

Specialization: Non-woven Textiles

Compulsory Courses - Quality Control	Winter	Summer	Passing	Credits
Industrial Textiles	2+2		Cex	6
Transmission Effects in Textiles	2+2		Cex	6
Analyses of Textile Structures		2+2	Cex	6
Textile Geography		2+2	Cex	6
Information in Textile Industry		2+2	Cex	6
Standardization of Textile Products	2+2		Cex	6
Facultative Courses - student chooses 4 (rules page XX)				

Specialization: Quality Control

Compulsory Courses – Non-woven Textiles	Winter	Summer	Passing	Credits
Composites with Textile Reinforcement	2+2		Cex	6
Industrial Textiles	2+2		Cex	6
Material Engineering of Nonwovens		2+2	Cex	6
Medical Textiles		2+2	Cex	6
Basics of Control Engineering		3+2	Cex	8
Properties of Fibres	2+2		Cex	6
Facultative Courses - student chooses 4 (rules page XX)				

Master studies TEXTILE ENGINEERING “M.Sc.”

Study branche: Textile and Clothing Technology

Specialization: Textile Technology

Specialization: Chemical Textile Technology

Specialization: Clothing Technology

Compulsory Courses – 1st year	Winter	Summer	Passing	Credits
Applied Mathematics	4+2		Cex	
Mechanics of Fibrous Structures <i>or</i> Selected Passages from Textile Machines	2+2		Cex	6
Thermodynamics and Head Engineering	2+2		Cex	6
Experimental Data Treatment	2+2		Cex	6
Thesis of Numerical Mathematic		2+2	Cex	6
Textile Physics <i>or</i> Physical Chemistry		2+2	Cex	6
Basics of Control Engineering		3+2	Cex	8
Compulsory Courses – 2 nd year	Winter	Summer	Passing	Credits
Textile Engineering	2+0		Cex	6
Diploma Theses 1	0+4		Pr	8
Ecological Aspects of Textile Processes		2+1	Cex	6
Quality Control		2+2	Cex	6
Introduction to Law		2+0	Cex	4
Diploma Theses 2		0+4	Pr	8

Specialization: Textile Technology

Compulsory Courses – Textile Technology	Winter	Summer	Passing	Credits
Unevenness of Textiles	2+2		Cex	6
Spinning Processes Modelling <i>or</i> Weaving Theory <i>or</i> Theory of Knitting	2+2		Cex	6
Analyses of Textile Structures		2+2	Cex	6
High-functional Textiles		2+2	Cex	6
Structure and Properties of Textiles		2+2	Cex	6
Industrial textiles	2+2		Cex	6
Facultative Courses - student chooses 4 (rules page XX)				

Specialization: Chemical Textile Technology

Compulsory Courses – Chemical Textile Technology	Winter	Summer	Passing	Credits
Analytical Chemistry	2+4		Cex	6
Kinetics of Dyeing	2+2		Cex	6
Trends in Textile Chemistry		2+2	Cex	6
Colour Measurement		2+2	Cex	6
High-functional Textiles		2+2	Cex	6
Facultative Courses - student chooses 4 (rules page XX)				

Specialization: Clothing Technology

Compulsory Courses – Clothing Technology	Winter	Summer	Passing	Credits
Utility properties of cloth. Materials	2+2		Cex	6
Theoretic Principles of Machines	2+2		Cex	6
Automation of Apparel Production		2+2	Cex	6
Computer Simulation of Clothing Production	2+2		Cex	6
Computer-aided Design <i>or</i> Special Technologies and Measurement in Apparel Production		2+2	Cex	6
Facultative Courses - student chooses 4 (rules page XX)				

Recommended facultative courses

Student of each specialization chooses 4 facultative courses. The relevation with topic of diploma theses is necessary. Students can choose according to following points of view:

- 1) it is possible to choose any subject taught at university
- 2) it is possible to choose any subject taught at Faculty of Textile Engineering
- 3) it is possible to choose subjects according to next recommended thematic blocs (tables 3, 4, 5,6)

TABLE 3				
Facultative Courses – specialization	Winter	Summer	Passing	Credits
Technical Textiles				
Special Fibres	2+2		Cex	6
Properties of Fibres	2+2		Cex	6
Composites with Textile Reinforcement	2+2		Cex	6
Industrial Textiles	2+2		Cex	6
Transmission Effects in Textiles	2+2		Cex	6
High-functional Textiles		2+2	Cex	6
Methods of Termic Analysis		2+2	Cex	6
Material Engineering of Nonwovens		2+2	Cex	6
Medical Textiles		2+2	Cex	6

TABLE 4				
Facultative Courses - specialization	Winter	Summer	Passing	Credits
Textile Structures				
Properties of Fibres	2+2		Cex	6
Composites with Textile Reinforcement	2+2		Cex	6
Modeling of Fibrous Structures	2+1		Cex	6
Structure and Properties of Textiles		2+2	Cex	6
Analyses of Textile Structures		2+2	Cex	6
Material Engineering of Nonwovens		2+2	Cex	6
Stereology		2+2	Cex	

TABLE 5				
Facultative Courses - specialization	Winter	Summer	Passing	Credits
Standardization				
Textile Metrology	2+2		Cex	6
Information in Textile Industry	2+2		Cex	6
Social Roles of Clothing	2+2		Cex	6
Textile Geography		2+2	Cex	6
Standardization of Textile Products		2+2	Cex	6

TABLE 6

Facultative Courses - specialization Pattern of fabrics, Design	Winter	Summer	Passing	Credits
Design of Textile Patterns	2+2		Cex	
Printing of Textiles	2+2		Cex	6
Patterning of Fabrics		2+2	Cex	6
Structures and Pattern of Knitted Fabric		2+2	Cex	6
Heads of design		2+2	Cex	5

Analyses of Textile Structures

Analysis of textile structures using optical methods. Sample preparation for microscopic work. Scanning of longitudinal and cross-sections of textiles (using image analysis techniques) Primary evaluation-transformation of image to points, curves and areas to characterize the individual types of textile structure. Secondary evaluation - calculating the model parameters of the individual structure (packing density, porosity, yarn diameter, surface structure, hairiness, belt fibers of OE yarn, components of blended yarns, cover factor and permeability of fabrics, geometry of binding points, set of fabrics).

Analytical Chemistry

Fundamental methods of classical analysis (qualitative analysis of ions, volumetry, gravimetry). Separations methods. Chosen instrumental chemical analytical methods used in textile laboratories (electroanalytical and spectroscopic methods, chromatography) and its practical application at chemical laboratory.

Applied Mathematics

Bases of vector analysis, curve and integrals of 1st and 2nd kind, bases of functional analysis, Hilbert and Banach spaces, Sobolev spaces. Systems of ordinary differential equations, Runge-Kutta methods, partial differential equations, classification, finite difference method. Basic principles of probability theory and mathematical statistics : probability distributions, their characteristics and application. Explorative data analysis, estimation of parameters, statistical models and tests, regression analysis, classification. Introduction to random processes, their models and method of analysis.

Automated Machines and Technologies

The aim of the subject is to gain theoretical and practical knowledge of the present state and trends of automation of textile machines and technologies. In the frame work of the subject the students get to know the control systems used on selected textile machines.

Automation of Apparel Production

Introduction into automation and robot application in the apparel industry. Resources of automation of the Clothing production preparation. Types of machine driving units, its properties. Design of the pneumatic circuits. Automated sewing machines. Automated loading in apparel. Air-cushion transport systems. Transport systems. CAD systems used in the Clothing preliminary. Automation for Embroidery. Principles of selected sensors. Problems of the manipulation with fabric. Robot effectors used in textile industry. Kinematics of robots. Application of industrial robots for the apparel production and assembly operations. Possibilities of the automated data collection (zip codes and others).

Basics of Control Engineering

Basics of Colouristic

Topic of these courses is to present for students the systems, principles used in coloristic. The courses are divided: Introduction, Basic terms, Physiology of color perception, Visual illusions and defections of color perception, Visual color assessment, Color systems, Color spaces CIE XYZ, CIELAB, Color differences, Color appearance, Color management, Color appearance by monitor, ICC profiles, Colorants, Color matching, E-business and calibration product appearance.

Basics of Textile and Clothing Production

Basic information about textiles, terminology and characteristics of textiles. Basic information of textile and clothing technologies - spinning, weaving, knitting, nonwoven technologies, textiles finishing, clothing technologies. Basic types of textile machines. Basics of organization and management of textile production. Character of textile sciences.

Business Economics

The aim of Business Administration is to acquaint the students with the missions and objectives of enterprise. The property and capital structure. The basic form of organization and management. Input and output, costs, economic resultat, prices. The basises of financial. The investment. The stabilization and end of firm. The Analysis of activities firm, the construction of indicators.

CAD/CAM Systems in Apparel Production

Introduction into applications of computer systems for the apparel company. Basic principles of CAD systems. Implementation of databases. Introduction in operational systems. Principles of WWW, design of web pages, programming of dynamical web pages. Application of the automated systems for the data collection in the Apparel factory, examples. Principles of graphic systems. Hardware of computers. Peripherals of CAD systems. Selected CAD software for the clothing production (design of clothes, pattern making, grading, layout planning, optimisation of cutting, embroidery).

Clothes Construction

Projecting clothes from creative and construction solving point of view. The meaning and somatometry applying in the ready - made typology, basic figure's types. Scanning surface of human's body by contact and contactless method. Division of somatic and construction's measures. Statistical characteristics of population, size categories in inland and abroad. The methods of marking sizes in accordance to clothing product's types and sex. System of construction additions. Constructing principles in different methodics, analysis of individual constructions knots. The construction of basic kinds of clothes. The basic modelling of clothes cuts. Pattern's work. Pattern's parts escalating. Principles of escalating work rules. Somatic anomaly, clothes' defects and its construction solution.

Colour Measurement

Introduction. Light sources and illuminants. Colour perception. CIE XYZ. Uniform colour scales. Colour differences. Pass/Fail decision. Gray scale rating. Measurement of whiteness and yellowness. Interaction of objects with light. Colour match prediction. Database preparation and optimisation. Instrument classification and components. Colour systems for colour selection. Artificial intelligence and colour measurement.

Comfort of Textiles

Definition of clothing comfort. Psychological comfort. Sensorial comfort and its evaluation. Skin sensors of comfort feeling. Survey of mechanical parameters which influence the fabric hand. Thermophysiological comfort, definition, survey of evaluation of its transient and stationary parameters. Heat transfer in nature and its application in comfort studies.

Communication Skills

Computer Application in Office Work

Business correspondence by PC - MS OFFICE, Internet, basis of hardware.

Thermophysiological functions of human body as thermal engine. General equation of heat balance between the human body and environment. Moisture transfer in capillary systems. Specific properties of textile materials in respect to clothing comfort. The effect of structure and composition of fabrics on their thermal resistance, warm-cool feeling and vapour permeability. Semi-permeable membranes. Functional garments. The use of fabric and garment comfort parameters in textile promotion and marketing. Evaluation of comfort parameters of fabrics by means of simple methods applicable in small mills and specialized shops.

Computer-aided Design

New techniques at the scan technology of the human body surface. 3D apparel designing. Automatic designing in the frame of the 2D. Step by step apparel designing in the frame of the 2D. Application MTM method for apparel designing in the frame individual body proportions. Somatotyping. Identification of somatic deviations. Clothing construction for somatic deviations bodies by the help CAD.MAKRA creation in the frame of apparel designing.

Computer Networks

The subject is focused on basic principles of the computer networks. Basic terminology of computer networks, topology, architecture. ISO OSI reference model. The common networking technologies - Ethernet and its variants, Token Ring, FDDI, ATM. Routing and routing protocols. Internet and function of its core protocols and services - IP, TCP, Domain name System, E-mail, WWW.

Composites with Textile Reinforcement

Classification and definition of composite materials. Fibre reinforced composite (fibres, matrices, interface and geometrical aspects). Rules of mixture. Textile and textile structural composites. Material selection and design methodology. Composite processing, prepreps.

Computer Simulation of Clothing Production

Definition of Simulation, discrete-event and continuous systems, analytical and simulating methods, types of simulation models, its structure. Problem formulation. Design of the model. Verification and validation of the model. Simulation results analysis. Queueing systems. Production process description- capacity, productivity, ... Software for the computer simulation. Design of the models with help of Witness, Lanner Group software. Optimisation, methods and software.

Cotton and Wool Type Spinning

The fiber materials used in the cotton and wool spinning mills. Spinning processes in combing and carding cotton spinning mills. The combination of the machinery. The prognosis of the progress. Unconventional technologies of spinning. Twisting of yarns.

Dyeing of Textiles

Dyes - connection of chemical processes with properties. Classification of dyeing systems, kinds of dye/fibre bonds. Kinetics of dyeing. Measurement of diffusion coefficients. Kinetic equations. Effects of temperature, diffusion models. Equilibrium of dyeing systems, adsorption isotherms. Thermodynamic criteria, affinity. Compatibility of dyes, applications of the theoretical approaches on the important coloristic cases. Principles of dyeing apparatus. Dyeing specifications of different and blended fibres. Combination of dyeing with other technologies.

Ecological Aspects of Textile Processes

The principals of ecology, evaluations of the state of the environment. The basics of toxicology. Water and the purification of waste water in the textile industry. The ecological aspects of textile finishing technologies (pretreatment, dyeing, printing, finishing). Detergents and their influence on the environment. Waste economy, problems of noise. Energy of the textile industry; classical and alternative methods of gaining of energy. Environment politics and their instruments. Ecotextiles, ecomarks and ecoauditing. Environment legislation.

E-commerce

The buying and selling of products and services by businesses and consumers over the internet. Typically there are three types of e-commerce transactions: business to business, business to consumer, and consumer to consumer.

Economy and Management of Enterprises

Economic Policy

The target of the subject Economic Policy is to apprise the students of basic instruments of economic policy and thier application in economic reality. The main emphasis is laid on the ability of students to judge effects and results of particular measures of state - in area of economic policy - affecting macroeconomic environment as well as enterprises, which can lead to rationalisation of their behaviour.

Experimental Data Treatment

Basic statistical characteristics of univariate data. Characterization of location and scale. Functions of random variables, Taylor expansion for the estimation of basic parameters. Exploratory data analysis. Visual inspection of data peculiaritics. Comparison of data distribution with theoretical ones. Data transformation for removing heteroskedasticity, symetrizing of data distribution and normality improving. Basic statistical assumptions about univariate samples. Minimum sample size, outehiers detection, normality and independence testing.

Essentials of Accounting

The subject aims to get knowlegde of basic accounting concepts, methods and tools of double-entry accounting. Students are acquainted with cycle of economic resources and its records in the double-entry accounting framework - accounting procedures in the classes of the accounts. Students get knowledge of the importance of financial accounting as a basis of the enterprise practice information, of accounting statement ability, of bookkeeping and accounting systems.

Finale Finishes of Textiles

Chemical and mechanical textile finishing. Finish: anti-creasing, non-iron, shrinkproof, anti-felting, hydrophobe, oil-repellent, anti-soiling, antistatic, flam-proof, antimicrobial, mothproof, hand finish. Calendeing and mangling, pressing, decatizing, peeling, cropping, sanforizing, compression shrinking, fixation and setting. Evaluation of those finishes.

Garment Pattern and Modelling

Clothing construction and Modelling from the point of view of the useable capacity regarding to body dynamic changing, applied clothing materials property and garment function. Enforcement of constructional additions on various garment types and silhouette. Principles

and tenets of the garment-modelling, portion and modelling method of the construction element for upper and lower part of the body. Garment construction and modelling by the help of the computer graphic art programme. Automatic construction by the help of CAD system. Digitalisation of construction elements. Shaping plate making. Difference computing and grading rules assessment like input parameters for grading of modelling elements. Alternative ways of grading, marker making by the help of the various CAD systems.

Heads of Design

Purport of design for human life and its necessities for exercise on the market. Industry design and design systems. Design and computer graphic. Ecologic design in all areas of industry and consumption, its presentation and propagation.

High-functional Textiles

This subject is aimed at central fields of applications of high-functional textile materials - high-functional textiles in medical, in sport, in protective working clothes, in engineering applications, in army. Smart textiles are taken in too. The first part of lectures is focused on some basic procedures of a textile materials production and on opportunities of incorporation of a functional element into the textile structure.

History of Clothing Culture

Aesthetics, its significance in the clothing culture. History of aesthetics and art. Basic terms from decorative composition. Basics of colour theory in connection with clothing, general requirements on clothing. The origin of garments and the reasons for origin. History of fashion, fashion trends. Influences on the development of clothing, in ancient times, the Middle Ages and in modern times. Art Nouveau style- a new style in art and clothing at the beginning of the 20th century. Fashion between the two world wars. Fashion after the Second World War. Development of the fashion silhouettes. Accessories. Reminiscences in fashion.

Chemistry

Chosen parts of general chemistry. Theory of chemical bond. Relationships between the structure of matters and their properties. States of matter. Phase equilibria. Kinetics and equilibrium of chemical reaction. Chemical energetics. Ionic equilibria. Theory of acids and basis. Fundamental processes of technology of water.

Industrial Textiles

This subject defined technical textiles used as a geotextiles, composites, filters, acoustic insulations and textile barriers. The main accent is put on the relation between the construction of textile and the textile properties.

Information in Textile Industry

Students work up information of textile practice. Students obtain bases programming of software MS ACCESS.

Introduction to Law

Introduction to Management

The aim of the course is to acquaint students with managerial activities and their practical reflection in the organizations, to provide students with the knowledge how to analyze processes in the organizations and to discuss all what is relevant for their work in the teams;

also to acquaint students with techniques and procedures used by the managers in the modern organizations.

Knitting

Preparation of the yarn for knitting. Basic terms in knitting. Knitting structures (weft, warp, special), properties and geometry of knitted fabric. Knitting machines and technology. Working and programming organs (patterning, machines control), flat and space shaping of knitted products. Systems of yarn supply and fabric take-down, other equipment.

Knowledge of Textile Goods

Fibre, threads, textile product, nonwoven product, flat textile, leather.

Knowledge of Textile Goods 1

Textile raw materials, characteristic of textile fibres. Construct of yarns, quality and use. Textiles, structure and use of cotton, linen and wool fabrics.

Knowledge of Textile Goods 2

Structure of woven fabrics, knitted textiles and nonwoven textiles.

Knowledge of Textile Goods 3

Home textiles, hide and leather, textile galanterie, medicine textiles.

Laboratory Practice

Macroeconomics

The target of lessons is to give comprehensive picture of macroeconomic theory, to explain exactly and clearly basic principles and interactions between particular processes and phenomena in macroeconomic reality. The main emphasis is laid on mastering the conceptual apparatus, especially on competence to analyze economic problems (inflation, unemployment, economic growth, etc.) and on capability of orientation in potential economic - political measures of state administration.

Machines of Clothing Production

Problems of charge formation and way of partition of charge to components. Parting charge technology. Principles and technique of jointing of parts on production of clothing. Stitch and seams, standards. Model of sewing machine. Analysis of formatting of sewing join. Equivalence of stitch-creating parts. Properties of joins in product. Unconventional manner of partition and jointing. Machines for ironing and forming in ready-made of production, backing machines. Traffic systems - logistics.

Machine Parts.

Basic design principles, static and dynamic loading, fatigue and durability of machine parts. Threaded joints, screws, bolts. Keys, splines and spline bushings, pressed and welded joints. Ball and roller, radial and thrust bearings, slide bearings and their housing. Springs. Gear trains, spur, helical, bevel gears. Belt drives with flat, V-type and synchronous belts. Chain drives. Shaft couplings Shafts. research process and methodology (methods of data collection, questionnaire design, sampling, methods of data analysis) as well as shows areas of applied marketing research in relation to marketing problem solutions.

Marketing

Students are introduced to the basics of marketing. More indepth study then follows in certain aspects of marketing eg. product, price, distribution, advertising and market research.

Marketing Research

The module gives an introduction to marketing research, explains needs for marketing research and its role in companies, discusses various types of marketing research, sources of data, describes the research process and methodology (methods of data collection, questionnaire design, sampling, methods of data analysis) as well as shows areas of applied marketing research in relation to marketing problem solutions.

Material Engineering of Nonwovens

Geotextiles, nonwovens and composite materials, estimation of area, length, number of objects and anisotropy of two-dimensional fi-ber objects, principles of adhesion, adhesion of liquid to solid, measurement of wetting angle, Ising model for wetting phenomena, filtration properties and morphology of non-woven filter, mechanical behaviour of nonwovens under the compression.

KAP/MV1 - Mathematics 1

Solving of simple problems of the applications of differentiation and integration, of the financial mathematics and of the linear algebra.

Mathematics 2

Elementary probability calcul, random variables and their distributions (binomial, Poisson, normal distribution), estimation, elements of hypotheses testing.

Measurement and Diagnostics on Machines

Students will get basic information in the area of principle, properties and application of sensors. Main fucus is to the inteligent sensors. Besides of theoretical knowledge, the learnig is focused to student individual, active and creative work in a laboratory with modern sensors and sophisticated measuring instuments. Sudents wiil get practical experience and know how from simple diagnostics methods that can be useful in their future work for a long time.

Modeling of Fibrous Structures

Compression of general fibrous assembly - van Wyk's model - fiber-to-fiber contacts, pressure as a function of packing density. Generalization of van Wyk's model - incompressible fiber volume. Strength and elongation of fiber - linear theory of blending, bundles with variable fiber elongation. Gauge length and strength of linear textiles - Peirce's model of independent probabilities, model of Markovian stochastic process. Tensile stress-strain relation of multi-axial textiles, regular multi-axial textiles and isotropy of modulus. Stress-strain relation of twisted fiber bundles.

Medical Textiles

Medical Textiles is a multidisciplinary subject which helps better communication between chemicals, biologists, physicians and textile specialists by tailor constructed fibers web for extra- and inter -body application. a.. Fully perception of connections among material properties, medicinal application (in vivo) , textile construction, economy and ecology of healthcare products . b.. Knowledge and understanding of basic terminology from different branches.

Mechanics

Parts of mechanics. Equilibrium of particles, rigid bodies. systems of rigid bodies. Internal forces. Stress and strain of rod. Axial torsional and bending deformations. Two - dimensional states of strain. Kinematics and dynamics of particles and rigid bodies. Most used parts of machines - bearing, shafts.

Mechanical Technologies of Nonwovens Production

Basic terms, characteristics, differences. Raw materials, web formation - trends. Principles of production of mechanically bonded nonwoven fabrics based on tangle fibre interbinding - felts, spunlaced technique. Basic arrangement of the main functional parts of needle punching machine. Stitch bonding processes, product applications. Recommended test methods for NW fabrics.

Methods of Stochastic and Simulation Modelling

The main goal of the course is to explain the basic principles of selected numerical methods, Monte Carlo methods and methods for statistical image analysis and utilization of these methods and models in the textile engineering applications. Examples of practical utilization will be focused on: simulation of textile wetting, defect detection in fabric and defect classification, evaluation of textile homogeneity, estimation of orientation characteristics of fibrous material etc.

Methods of Termic Analysis

Studies of subject aim at methods investigate of fibres internal structure, thermal analysis methods (differential scanning calorimetry, thermomechanical analysis, dynamic-mechanical analysis). Subject describes physical and chemical polymers properties.

Microeconomics

The subject Microeconomics is a course whose aim is a microeconomic analysis of economic problems, which enables formation of complete picture leading to rational behavioural of microeconomic subjects in market environment using conclusions from the chosen microeconomically oriented economic theories.

Nanomaterials

Course description Academic aims: Introduction to a issue of nanofiber materials. An education is focused to presentation of raw materials for manufacturing of nanofibers, possibilities of manufacturing and synthesis of nanofibers, their properties, possibilities of their testing and usage in a practical life. Especially, lessons are attend to carbon nanotube, carbon nanofibers and nanowires, electrospinning and electrospun nanofibers, surface nanotreatment of fibers and textile materials commonly. Several lectures is based on testing of nanofiber materials: microscopy, testing of mechanical properties, testing of composition of nanofibers and so on. Usage of these nanofiber materials is of course another part of this subject. Specialized skills: Experience with electrospinning technology - with manufacturing of electrospun nanofibers from nontoxic solutions, usage of electron microscopy for visualization of nanofiber materials (electro spun nanofibers, carbon nanotubes), testing of electrospun nanofiber layers and so on.

Nonwoven Manufacture

Characterization, trends and terminology of nonwovens. Fibers and binders for nonwovens and their properties. Web formation and layering methods. Bonding and web stabilizing methods. Structures and properties of nonwovens. End-uses. Converting methods.

Patterning of Fabrics

Basic and derived weaves. The weaves in the stripes, repp weaves, drill weave, double weft and double warp fabrics. The influence of the coloured and weaving design on the final view of fabric. The weaves of the dobby fabrics - basic and derived weaves. Design of the dobby as well as jacquard fabrics. Possible weaving technique using in the fabric designing. Different way of fabric design. Possibility using of the computer design in the fabric patterning.

Physical Chemistry

State behavior of ideal and real fluids, intermolecular interactions. Axioms of phenomenological thermodynamics and their physical interpretation. Thermochemistry, phase equilibrium in one-component and multi-component systems, key role of the chemical potential in thermodynamics. Chemical equilibrium, chemical kinetics, electrochemistry, surface properties and transport phenomena.

Polymer Bonding Agents

Polymerization - step-reaction, radical chain, nonradical chain, copolymerization - structure and properties of polymers - polymer solution, morphology and order in crystalline polymers, rheology and the mechanical properties. Degradation of polymers. Polymer dispersions. Solid forms of polymer bonding. Elastomers.

Power Electronics

Both in the theoretical and experimental area the subject deals with basic properties of electric linear circuits, electrical measurement, principles of electromagnetic converters, properties of electric machines, elements and circuits of power electronics applied in electrical drives. The subject expects knowledge of electric and magnetic fields from physics course. Applications in the textile industry and technology are considered.

Printing of Textiles

Theory of textile printing. Thickeners and printing pastes. Cotton, wool, synthetic fibres and blends printing. Evaluation of the print quality. Textile printing machines. Special styles in printing. Dye fixation and aftertreatment processes. Developments in textile printing.

Principles of Critical Thinking

Pretreatment of Textiles

Theoretical basics and applications of the technological processes of the pretreatment of textiles from natural, synthetic and blended fibres (agents for sizing, desizing, detergents, washing, scouring, mercerizing, bleaching, carbonizing, crabbing, decatizing, milling, chlorination, fixation etc.). Principles of machinery of pretreatment technologies. Possibilities

Processing of the Secondary Raw Material

Textile wastes, sources, classification, identification and assessment. Sorting, trimming, shalning, dedusting and preparation for pulling. Rag pulling, rag machine design, arrangements of parts. Quality of the products. Cleaning, opening and garnetting. Utilization of textile wastes in yarns, in nonwoven fabrics. Special methods for processing the textile wastes. Products from secondary raw materials in practice. Liquidation of the textile wastes, incineration, compositing, dumping.

Processing of Technical Text

Teaching about writing of technical text using software MS WORD and POWERPOINT for creation paper and science presentation.

Problems of Optimization

The subject deals with the theory and applications of the most used algorithms of optimization and elementary methods of operational analysis.

Production of Garments

The history of clothing, garment in relation to its wearer, surroundings, physical loading of organism and to social aspects. Structure and qualities of clothing materials. Technical preparation of the clothing production. Somatometry. Structure of garments, use, size systems. Technology of textiles dividing, combining and finishing process of the clothing production. Theory of the creation of sewn connection, model of a sewing machine, stitch creating organs. Parameter and qualities of the sewn connections. The use of computer art . Automation trends in clothing industry.

Programming

The aim of the subject is to present the ABC of programming . Students will learn development of certain algorithm and programming using the language Borland Pascal.

Programming for WWW

New Technologies And Internet, XML, Scripting Languages, Databases, CGI.

Programming in MATLAB

Basic program coding in Matlab, working with matrixes and fields. Special effects and basic operation for graphic. Command system. Input, output. Data processing with examples for textile engineering.

Programming Means of Measurement

This subject deals with programme tools used at data processing in technical measurement field. Students are introduced into measuring systems based on plug-in cards especially, they gain information of interactive and graphic cards of object oriented developing systems, and they will learn how to use computers when arranging and controlling experiments.

Programming Tools

The subject is focused especially to problems of design and creation of user interfaces of computer applications. Using object oriented principles it introduces to visual support, the event programing, multi thread techniques and usage of system functions.

Properties of Fibres

Subject is aiming at study of molecular, supramolecular polymers structures and methods theirs evaluation. Subject deal with fibres properties (thermal, surfaces, geometrical, mechanical, sorptive, electrical ?) with respect theirs structure. Subject furthermore deal with rheological models of polymers and fibres properties.

Quality Control

General problems of quality. Development od quality conception. On-line and Off-line quality control. Standards. Complex quality index. Quality evaluation of textile materials. Hand evaluation of fabrics. Tailorability of fabrics. Comfort. Statistical proc

Quality Evaluation

General problems of quality. Development of quality conception. Standards. Categorized data, nominal, ordinal and cardinal data. On-line and Off-line quality control. Complex quality index. Quality evaluation of textile materials. Hand evaluation of fabrics. Tailorability of fabrics. Comfort. Statistical process control, capability indices, control charts, Taguchi loss function, off-line quality optimization.

Selected Passages from Textile Machines

This subject deals about a basic mechanisms and machine aggregations design of textile machines for textile faculty students according to their specialization. Students gain knowledge about assembling of dynamics models of basic textile processes and mechanical systems including their analysis and optimization. Above all, this is a question of a theoretical analysis following basic subjects of the branch of study.

Simulation of Automated Systems

Introductory part of the course is devoted to the basics of system modelling and simulation methods. The main part of the course is then focused on digital simulation of linear and non-linear continuous deterministic systems in both input-output and state space context. Practical examples are used to demonstrate the application possibilities of MATLAB/Simulink software for various classes of nonlinear phenomena and dynamics limitations of the simulated systems. The modelling methods of discrete event systems are explained using examples of flexible manufacturing systems and queuing systems.

Small and Medium-sized Enterprising

The Aim of this subject is to describe the development of the Czech private business and inform the students about specific qualities of the SME in the area: foundation, start of business and production. Choice of legal forms of business (subject of enterprise, ownership relations, establishment). Organizational structures and division of labour (by the authority, by the task). Property and capital structure of SMEs, and further activities of managing and financing SMEs.

Sociology

Social Roles of Clothing

Definition of the term textile sociology, its meaning subject and function of sociology of textile as a scientific subject. Methods and techniques of sociological research. Influence of social relationships on the culture of clothing. Clothing as a means of expressing one's ego. Clothing as a means of operant in human communication a means of expressing pertinence to social classes, ethnic groups or minorities.

Some articles from the cloth. prod. techn.

Basic conceptions of clothing production technology. Technical standards and terms of technological operations. Criteria of the production of parts, sections and assemblages of the basic garment types. Creation of technological progressions. The practising of the pivot modal points of clothing production.

Special Fibres

The special fibers will be divided to the categories of high-technical fibers (high strength, temperature resistance, high modulus) and category of high functional fibers (thermal

insulation, super absorbency, conductive fibers etc.). The basic characteristics of both kinds of fibers will be described. The mechanical, physicochemical and special properties will be reviewed. Some technological peculiarities of textile structures creation will be presented.

Special Knitting Technologies

The basic of weft knitting technology, fundamental terms, knitting patterns, required properties of knitted works for technical textiles. The basic of warp knitting technology, comparison and advantage of selection of technology, fundamental terms, knitting patterns, required properties of knitted works for technical textiles. Knitted fabrics for automotive industry, knitted fabrics for medicine, their utilization for protection and treatment of injury, protection of pressure on wound. Principle of splicing, material preparation, patterns, flat and hollow textiles with core, required properties of knitted fabrics for technical textiles, utilization of high-strength, carbon and glass fibres, possibility of braiding of various hollow product, using of this splicing textiles for composite materials, knitted and spliced textiles and their composites for sport utilization.

Special Spinning Technologies

Technology of processing of bast fibres. Outline of unconventional spinning technologies. Automation in the spinning mills. Technologies of the production of fancy yarns. Technologies of the production of sewing threads. Technology of texturizing, Theory of the structure and twist of twisted yarns.

Special Technics and Measurement in Apparel Production

Measurement of temperature, application of thermography. Measurement of mechanical properties of fabric. Evaluation of comfort of clothes. Colour measurement. Application of image analysis for the measurement. Diagnostics of structure and properties of fabric: dynamometers, ultrasound sonography, acoustic emission, laser interferometry, holography, diffraction, electron microscopy. Non traditional methods of cutting and connection of fabric (thermal and electrical methods, electron, microwave, water and laser beam). Technology of technical fabric production process.

Special Weaving Technologies

Technological processes during the production of special fabrics used for clothing, technical and medical purposes. Production of ribbons, velvets, corduroys, plushes, endless driving belts, textiles for paper making industry, for civil engineering, agriculture.

Spinning

Basic spinning processes, systems and fibre products, outline and characteristics of the spinning processes and systems with the peculiarities in the main technologies, spinning technique: opening, mixing, cleaning, securing of regularity, carding, drawing, combing, tow-to-top spinning systems, roving and spinning (ring and open-end rotor) system, unconventional spinning, twisting.

Spinning Processes Modelling

Theoretical means for analysis of the spinning processes and systems, mechanical analysis of the preparation of fibres material, mass unevenness theory, doubling and regulation, mechanical and probability analysis of carding, drawing as a dynamic system, technology of combing and theory of the combing noils, theory of roving and spinning (ring-and OE-rotor spinning system as a dynamic system) , theory of winding and twisting.

Standardization of Textile Products

Standardization of textile technical and consumer products. Evaluation of textile products according to the laws of European Union. The way of the certification of the textile products.

Strategic Marketing

Every firm must search for strategies, marketing plans, and finally, a whole marketing program. Steps in planning are investigated from introductory analysis to implementation and control.

Strategy of Textile Goods Sale

Textile market and production - CZ, EU, world Specification of textile production - sales aspect Distribution of textile goods Selection and characteristic of textile product range Qualitative and ecological aspects of textile product marketability Signification of Eco- and ISO-certificate on the textile market Role and profile building of textile sales manager and of drapers Preparation and realization of transaction Textile exhibition, textile fair, presentation of textile goods, fashion trends Price, price policy, cooperation, service, support.

Structures and Design of Knitting

Structure of knitted fabrics, basic structured elements. Knitted simulation. Properties of knitted fabrics and their influencing. Weft-knitted structures, warp-knitted structures. Knitted pattern, possibilities of technology. Design of knitted fabrics. Computer aided knitted patterns.

Structure and Properties of Textiles

Principles of flat textiles and modeling. Models of woven and knitted structures: geometrical, mechanical, rheological, and combined models. Models of fabric properties and mechanical behavior of products.

Technical Drawing

Main goal of this subject is a capture of content and creation of technical documentation.

Technical Preparation of the Production

Technical preparation of the production - the basis of successful collection. The role of modelling workshop. Technological preparation of the production. Methods of the work standardization. Working rule production process, production measure. Technical - economic standards. Economic preparation of the production, data for calculation, calculation of the effectivity of production. Outputs from TPV. Organization of the production. Technological project of the production. Sources and trends of the rationalisation of sewing process. Control of quality.

Technical Textiles

The aim of course is to show how and where textile products can be used, how they can be made and what quality they must have. Areas for using industrial textiles and the significance and classification of industrial textiles. Raw materials, the production of industrial textiles and their finishing. Quality and testing of industrial textiles. . Pros-pective development of industrial textiles.

Technical Textiles Production

Characteristics of the generic groups of products made up of technical textiles, their main parameters and required properties. Technical textiles; textile fibres used in TT; high-tech fibres; their properties and producers. Structures, making up, technology of lay preparation; conventional and unconventional methods of division into cut parts. Conventional and

unconventional methods of joining (sewing, gluing, fusing and welding). Needles, threads and machines for joining of specific TT structures and materials. Joint durability.

Technological projects

Introduction to creation of a garment collection. Fixing of job standards. Working instructions, process of manufacture. Production efficiency. Quality control. Analysis of individual sectors of technical preparation of manufacture (TPM), methods of drawing up technical and technological documentation. Documentation and organization of a work station using computer technology. List of operations, working procedure and process of manufacture, manufacturing cycle. Methodology of fixing of job standards. Economic preparation of manufacture, calculation data, calculation of production efficiency.

Technology of garment manufacture

Basic concepts, history and process of ready-made-clothing industry, technological steaming of products. Analysis of technological totals, following of technological operations in the parts of sewing and pressing, production of technological methods. Drawing's up technology of ladies' skirts, blouses, dress, shirts, assembly of unlined clothes, trousers, waistcoat, man's jackets, ladies' and men's coats. Clothes' defects.

Textile Engineering

Textile Fibres

Fibre forming polymers and their characterisation. Basic structural elements in fibres. Geometrical properties of fibres - length, cross section, fineness. Mechanical and time dependent mechanical properties, swelling and dissolution. Thermal properties stationary and transient. Electrical properties - triboelectricity. Degradation and aging of fibres. Typology of the all main kinds of natural, chemical and synthetic fibres.

Textile Finishing

Textile finishing of textiles from natural and synthetic fibres. Significant properties of textiles significant for their finishing. Physical and chemical basis of finishing. Pretreatment of cotton, wool and synthetic materials. Dyeing of cotton, wool and synthetic materials and machinery. Printing of cotton, wool and synthetic materials and machinery. Drying of textiles. Mechanical and chemical finale finishes of textiles and their evaluation.

Textile Geography

This subject includes the questions of textile production, textile technology and geographical situation. We'll occupy with development of textile production from its foundation to nowadays how in Czech Republic and world, too. The students will be to travel to the textile firm, to visit museum and textile exhibition. Then they will write the projects what they defend in the end term.

Textile Chemical Analyses

The detection of chemical and other damages and quality differences in all main kinds of fibres. Analyses of admixtures, sizing and finishing agents on fibres. The estimation of the kinds and effects of auxilliary and finishing products. The identification of dyestuffs in substance and on the fibre. Levelling and other colouristic tests. Colour fastness.

Textile Chemistry

Chemistry of inorganic compounds used in the textile industry; their production, properties and application. Chemistry of water, water in the textile industry. Chemistry of organic compounds used in the textile industry. Chemistry of dyestuffs. Chemistry of surfactants and detergents. Natural and synthetic polymers in the textile industry; their production, properties and application.

Textile Metrology

Textile Physics

Topic of these courses is to present for students the fundamental knowledge from applied physics. The courses are divided into three main parts: 1.Characteristics of special materials, 2. Interactions of textile materials and radiation, 3.Surface phenomena. Courses contain the parts from soft materials, gels, foams, interaction between radiation and textile surface, microscopy, chromic phenomena, surface finishing of textiles, wettability and surface tension.

Textiles and Technology

In this subject students gain fundamental knowledge of technological processes used in the manufacture of woven, knitted and non-woven textile materials and fabrics. The theoretical part is aimed primarily at the description of individual processes and basic calculations of process parameters. The practical part is concerned with practical examples of machines and instrumentation in individual laboratories.

Textile Testing

General aspects of textile testing and monitoring of textile processes. Testing and quality evaluation Textile metrology. Application of computers in textile laboratories. Testing of the physical and geometrical characteristics of textiles. Surface and unevenness testing. Mechanical and time dependent mechanical properties. Utility properties testing. Process parameter testing. Complex testing devices.

Theoretic Principles of Machines

The influence of the globalisation on the ready-made industry, machines and equipment in the ready-made production, mechanization and automation of the ready-made production. Theoretic principles of the stitch creation, dynamics of the sewing thread tension, needles. Automation of the sewing process, manipulation and robotics in partial operations. Forming of the articles of clothing, forming machineries in the production. Mechanical properties of textile materials, influence of the moisture, temperature; transient states, mechanical tension and formation of the permanent deformations, viscoelastic properties of the textile materials, rheological models, heat transfers between a shaped piece and the textile, unorthodox manners of bonding.

Theory of Control

The subject covers identification and control methods of dynamic systems. The control methods are explained for linear systems, the identification methods for both linear and nonlinear systems. The presence of noise and disturbances is considered. Students are obliged to perform practical exercises in laboratories with dynamic systems. They measure and verify identification and control methods using the software tool MATLAB.

Theory of Knitting

Functions of knitting machines and its characterisation. Mechanism of knitting machines, theoretical aspects of their functions. Theory of fabric designing. Creation of tensile force in

knitting yarns. Novel knitting principles. General properties of knitted fabrics (geometry, mechanical, mass, deformation, etc.). Fabric quality evaluation.

Thermodynamics and Heat Engineering

Thermodynamic laws, thermodynamics of ideal gas, solving simple processes and cycles. Selected irreversible processes, thermodynamics of real gases and vapours. Mixtures of ideal gases. Humid air (air conditioning and drying). Fundamentals of heat (conduction, convection and radiation).

Thermal - Chemical Technol. of Nonwovens

Bonding agents-theory and properties. Wet-laid systems. Bonding by polymer dispersions, foams, pastes and solutions. Felting process. Surface treatment. Polymer-laid systems: Spun-bond, melt-blown and electrostatic spinning. Calender bonding, through-air bonding, infra-red and ultra-sound bonding. Theory of heating fiber layers. Structures, properties and end-uses of textiles.

Thesis of Numerical Mathematic

The main goal of the calculus course is to explain the basic principles and methods of numerical methods (approximation of functions, solution of nonlinear equations, approximate determination of a derivative and an integral, solution of differential equations) The practical aspects of applications of these methods and their use in solving concrete engineering problems (including the application of contemporary mathematical software in the laboratories) will be emphasized.

Transmission Effects in Textiles

Basic functions of clothing. Principles of steady-state of heat by conduction, convection and radiation. Thermal conductivity and resistance. Heat transfer coefficient and boundary layer. Boundary conditions. Fourier's equation of transient heat conduction. Laws by Wien and Stephan-Boltzman of heat transfer by radiation. Moisture transfer, Fick's laws, capillarity, wetting and wicking. of humans. Psychological and sensorial comfort. Body sensors of comfort. Thermophysiological comfort and its definition. Thermophysiological functions of human body. General equation of thermal equilibrium of human body. The effect of structure, composition and layering of textiles on their thermal and water vapour resistance. Dynamical aspects of thermophysiological comfort: thermal and moisture absorbtivity of fabrics. Instruments for measurement of steady-state and transient characteristics of thermophysiological comfort of fabrics. Specific properties of various textile materials in respect to thermal comfort of the final garments. Examples of special thermal-protective garments.

Trends in Textile Chemistry

Unevenness of Textiles

Basics of statistical dynamics. Theory of the mass unevenness-parameters and characteristic functions (spectrogram and variance - length function). Tester for mass unevenness-analysis, evaluation and utilisation in the technology. Types of defects. The influence of the technological and corrective processes on the structure of the mass unevenness. Mass unevenness and defects of the flat textile fabrics, coherence of the linear and flat textile fabrics, evaluation, identification of the cause, elimination.

Utility Properties of Clothing Materials

Garment in relation to its wearer, surroundings, physical loading of organism and its function. Physiological comfort and discomfort. Theoretical relationship of the permeability of humidity, water and air through the material as a basis of physiology of clothing problematic. The development of clothing materials from the point of view of the structure of used raw materials and adjustments. Lining and pocketing materials - their properties. Interlining, wadding, reinforcing materials. Clothing product as a whole, aspects of durability, representation and physiology. Properties and parameters of sewing threads. Structure of the clothing product with regard to used materials. Processing and utility qualities of various clothing materials and the way of their evaluation. Relation - quality of clothing materials and quality of clothing product.

Warp Knitting

Preparation of materials for warp knitting. Construction of warp-knitting machines; their characterization and applications. Technology of production and designing of warp-knitted fabrics. Special technologies used in warp knitting. Basic production processes of warp-knitted fabrics for technical applications. Structures of warp-knitted fabrics and testing methods.

Weaving

Materials preparation technology for weaving and knitting (winding, warping, sizing, drawing-in). Basic principles of the weaving technology, theoretical aspects of the weaving process. Looms and weaving machines. Weaving machine mechanisms, their mechanics and technological influence on fabric formation. Basic weaves. Technological weaving calculations.

Weaving Machines and Technology

Material preparation technology for weaving and knitting (winding, warping, sizing, drawing-in). Operational sequences in the preparation room. Thread unwinding from supply packages, ballooning. Thread tensioners, dynamics of friction and yarn braking. Defects during unprecise winding and their removal. Precise winding, weft winding. Arrangement of winding units on machines. Automation of winding machines. Twisting, fancy yarns. Warping, creels. Sizing, automation and regulation of the sizing process. Material handling, warp knotting and drawing-in. Theory of fabric creating and principle of simple and multished weaving. Loom mechanisms and influence of weaving frequency and fabric width on the loom production. Warp tension and its regulation. Geometry and dynamics of the shed. Weft inserting and weft its tension. Dynamics of sley and fabric forming process. Beat up process and weft slipping into the cloth fell. Mutual friction between weft and warp during beat up process.

Weaving Theory

Stages of fabric formation, weaving principles, main aggregates of loom, automation, electronic control, weft picks. Loom output and reliability of machine groups. Kinematics and dynamics of weft shed and beat - up. Warp and cloth regulators, warp features as a regulated system, dynamics and stability of warp regulation, consequences in the end products. Defects in products, taking-in of defects. Beat-up, fabric forming, forming zone, beat-up marks. Fabric structure, models and stages of interlacing. Force and deformation ratios in fabric equilibrium. Models of weft friction along warp, velocity dependences. Course of beating-up pulse, slip of weft fabrics.

Weft Knitting

Yarn preparation. Machine efficiency. Parts and units of weft knitting machines and machine control (knitting mechanism, program med control, systems of yarn supply and fabric -down, machine check etc.). CAM, CAD, CIM systems in weft knitting. Standard and special technologies or weft knitting fabric and fully fashioned production.

Working Practice

Practical demonstration of individual machines in spinning,weaning and knitting laboratories including their attendance.