## Study plan

## Name of study plan: 09 116 NSTI VMI 2012 základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Mechanical Engineering

Type of study: Follow-up master

Required credits: 121 Elective courses credits: 0 Sum of credits in the plan: 121

Note on the plan:

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 84

The role of the block: P

Code of the group: 12NS\*1P-VMI

Name of the group: 2012 NSTI 1.sem povinné VMI

Requirement credits in the group: In this group you have to gain 26 credits

Requirement courses in the group: In this group you have to complete 6 courses

Credits in the group: 26 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2383011	Business Ethics and Managerial Psychology	Z	2	1P+1C	*	Р
2321071	Physical metallurgy Ji í Janovec, Jana Sobotová, Jan Kr il, Jakub Horník <b>Jana Sobotová</b> Jana Sobotová (Gar.)	Z,ZK	5	3P+1C	*	Р
2321075	Integrity of materials Ji í Janovec, Lucie Pilsová, Tomáš Vampola, Pavlína Hájková, Jakub Horváth Jakub Horváth Jakub Horváth (Gar.)	Z,ZK	4	2P+1C	*	Р
2331090	Theory of Casting Bohumír Bedná , Barbora Bryksí Stunová, Aleš Herman, Irena Kubelková, Milan N mec, Jind ich Zeman Aleš Herman Aleš Herman (Gar.)	Z,ZK	5	3P+1C	*	Р

### Characteristics of the courses of this group of Study Plan: Code=12NS\*1P-VMI Name=2012 NSTI 1.sem povinné VMI

2383011	Business Ethics and Managerial Psychology	Z	2						
This course is designed as an introduction to thinking ethically. Ethics really has to do with all levels-acting ethically as individuals, creating ethical organizations and governments, and									
making our society as a	a whole ethical in the way it treats everyone.								
2321071	Physical metallurgy	Z,ZK	5						
The course deals with t	he explanation of processes and procedures which form the the theoretical fundamentals of engineering and mechanical en	gineering technolo	ogies. Emphasis						
is laid on thermodynam	iics, diffusion, crystal lattice structures and their imperfections, phase transformations and hardening and dehardening proces	sses. Attention is	also paid to						
degradation processes	i.e. failure of materials, fatigue, creep, corrosion, wear and radiation failures.								
2321075	Integrity of materials	Z,ZK	4						
Dealing with tasks of co	, nitinuum mechanics; finite element method. Matrix and tensor calculus of stress and strain. Linear and nonlinear fracture med	chanics. Assessm	ent of conditions						
of integrity of structures	s, operation, safety and reliability of structures with defects.								
2331090	Theory of Casting	Z,ZK	5						
Properties of liquid allo	Properties of liquid alloys. Crystallization of foundry alloys. Volume changes during cooling and solidification, and their consequences. Principles of Feeding. Controlled solidification.								
Interaction the metal with the mold. Defects resulting from shrinkage. Cast iron with lamellar graphite. Cast iron with spheroidal graphite. Malleable cast iron. Cast iron with vermicular									
graphite. Iron for specia	ıl use. Metallurgy of steel. Metallurgy of aluminum alloys, magnesium and titanium. Alloys of copper.								

Code of the group: 12NS\*2P-VMI

Name of the group: 2012 NSTI 2.sem povinné VMI

Requirement credits in the group: In this group you have to gain 32 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 32 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2321072	Metallic Materials Ji í Janovec, Jana Sobotová, Jakub Horník, Petr Zuna, Elena ižmárová Jakub Horník Jakub Horník (Gar.)	Z,ZK	5	2P+2C	*	Р
2341082	Non-convetional material removal processes Pavel Novák	Z,ZK	4	2P+1C	*	Р
2322042	Advanced materials in engineering  Ji í Janovec	KZ	4	1P+2C	*	Р
2341066	Programming of metal cutting on CNC machines  Jan Tomí ek, Pavel Novák Pavel Novák Jan Tomí ek (Gar.)	Z,ZK	5	2P+3C	*	Р
2332114	Project II František Tatí ek	KZ	5	0P+5C	*	Р
2332025	Special Technologies of Surface Treatments  Jaroslav ervený, Zden k Hazdra, Viktor Kreibich, Ji í Kucha Ji í Kucha  Viktor Kreibich (Gar.)	KZ	4	1P+2C	*	Р
2331097	Theory of Joining and Cutting Tomáš Gur ík, Ladislav Kola ík, Marie Kola íková, Antonín K íž, Pavel Rohan Ladislav Kola ík, Ladislav Kola ík (Gar.)	Z,ZK	5	2P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12NS\*2P-VMI Name=2012 NSTI 2.sem povinné VMI

2321072 Metallic Materials	Z,ZK	5
Metallic materials. Class ification of metallic materials. Low-carbon weldable steels with higher strength. Stainle	ess steels. Austenitic stainless steels, ferritic stainless steels.	Heat-resisting
and creep-resisting steels. Tool steels. Non-ferrous metal alloys - basic classification. Copper and copper allo	ys. Aluminium and aluminium alloys. Titanium and titanium a	alloys. Heat
treatment of metallic materials		
2341082 Non-convetional material removal processes	Z,ZK	4
Basic working principles, current machining apllications, future development. Electrodischarge machining - pri	nciple, mechanism of material removal, hole and 3 - D schape	es production
wire electrodischarge maschining. The utilization of the energy beams for machining - laser, electron and ion be	ams, plasma arc. Electrochemical machining - basic principle	e, applications
full - form shaping. Chemical machining. Water - jet and ultrasonic machining. Technological, economical and	I surface quality consideration when using nonconventional	
processes.Environmental and Safety Aspacts of Electrophysical and Electrochemical Processes.		
2322042 Advanced materials in engineering	KZ	4
Subject promising materials provide an overview of selected recent construction materials. It is presented the	e development and the physico-mechanical properties of the	ese materials
and listed the most common types of these materials. Demonstrated their fundamental characteristics, includes	ling economic considerations and international manufacture	rs. They
presented their technological capabilities, usability and design methods for marking.		
2341066 Programming of metal cutting on CNC machines	Z,ZK	5
Processing mock-up for casting, let us say mock-up of die tool models to the form of NC programme for CNC	controlled milling machine. Usage of CAM system. Optimal	lization of too
paths with reference to cycle time and achieved quality of finished machined surface.		
2332114 Project II	KZ	5
The subject deals with the usage of computer aided techniques in production processes of forming, casting a	and welding. Basic characteristics of the software FORGE, F	PAMSTAMP,
QForm, Novacast, ProCAST, MagmaSoft and SYSWELD with demonstration of selected examples.		
2332025 Special Technologies of Surface Treatments	KZ	4
Special surface treatment technology, advanced technology trends. Measurement of process parameters in	surface technology, computer technology in the manageme	ent and contro
of surface treatment . Special surface preparation , combined pretreatment , pretreatment quality control . Con	nversion layer, in-process protection, anodic oxidation. Testing	ng and quality
control of surface treatments. Ways of creating functional coatings , verification of performance . Finishes to h	leat and abrasion, special skid coatings. Abrasion resistance	e , tribologica
properties. Galvanic alloy and composite coatings. Thermally sprayed coatings and their composition. Hot-dip	coated in molten metals. Electroforming , the excretion of he	eavy coatings
Molds for engineering technology methods of surface treatment. Finishes in electrical engineering and electron	ics. Surface finishing machine tools. Coatings with nanopartic	cles . Disposa
of waste water and environmental issues . Techno-economic indicators finishes.		
2331097 Theory of Joining and Cutting	Z,ZK	5
Course covers technologies of welding, brazing and thermal cutting. Description of joining methods, their prin	ncipals, equipment and typical application in the industry is o	done. In focus
gg		
are welding technologies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also	topic of material weldability and assessment of joint quality	by destructive

Code of the group: 12NS\*3P-VMI

Name of the group: 2012 NSTI 3.sem povinné VMI

Requirement credits in the group: In this group you have to gain 21 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 21 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2321073	Non-metallic metals Zde ka Jeníková, Ta ana Vacková Ta ana Vacková (Gar.)	Z,ZK	4	2P+2C	*	Р
2382052	Business and Management Miroslav Žilka, Petr Žemli ka, Jan Horejc Miroslav Žilka Miroslav Žilka (Gar.)	KZ	3	2P+1C	*	Р
2342114	Project III. Pavel Novák	KZ	5	0P+5C	*	Р

2341004	Manufacturing systems design Ji í Kyncl Pavel Novák Libor Beránek (Gar.)	Z,ZK	4	2P+2C	*	Р
2331012	Theory and Practise of Metal Forming František Tatí ek František Tatí ek (Gar.)	Z,ZK	5	3P+2C	8	Р

Characteristics of the courses of this group of Study Plan: Code=12NS\*3P-VMI Name=2012 NSTI 3.sem povinné VMI

2321073 | Non-metallic metals

The lectures cover the entire range of non-metallic engineering materials, a majority of them are devoted to polymer materials which are most frequently used in mechanical engineering and the volume of their consumption highly exceeds that of the rest of non-metallic materials. Emphasis is laid on explanation and realization of basic terms in the field of non-metallic materials. The lectures also deal with standardization, environmental and economical aspects which follow from the different properties of non-metallic and metallic materials.

2382052 Business and Management

KZ 3

This course introduces entrepreneurship as a way relevant to student's future professional career. Technically oriented students who haven't any specialized economical and management courses in their curriculum are introduced to the fundamental issues needed to start of their own businesses using simple and understandable form. To study the basic information of individual topics e-learning materials accessible on the web portal are prepared. Acquired knowledge is then practiced at workshops involving external lectors. Evaluation and classification is based on the e-learning tests and student?s case study, related to small business issues (mostly the business plan of a start-up company).

2342114 Project III. KZ 5
Course is focused on solving a complex tasts from the field of machining, process planning and metrology.

2341004 Manufacturing systems design

Z.ZK 4

Theory and methodology of technological designing, time and spatial structures of production systems. The aim of the course is to teach students with modern approaches and methodology of production systems designing with respect to their flexibility, productivity and production quality. Introduct students to the complex design of production systems within the supply chain. Students will be acquainted with modern methods of industrial engineering and lean manufacturing.

2331012 Theory and Practise of Metal Forming

Z.ZK

5

Fundamentals of metal forming theory. Stress-strain relationships in elasticity and plasticity. Methods for analyzing metalworking processes. Workability of metals. Individual constraints in metalforming and their influence on the forming process. Fundamentals of theory and practice of basic bulk metal and sheet metalworking processes. Calculation of energy and loads in forming, selection of forming equipment.

Code of the group: 12NS\*4P-VMI

Name of the group: 2012 NSTI 4.sem povinné VMI

Requirement credits in the group: In this group you have to gain 5 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 5 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2381093	Ekonomics and Finance	Z,ZK	5	2P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12NS\*4P-VMI Name=2012 NSTI 4.sem povinné VMI

2381093 Ekonomics and Finance

Z,ZK

5

The topics of this course are tightly linked to the topics of the course Enterprise Management Economics. It develops more in deep basic set of knowledge and skills of mechanical engineers in managerial, economic and financial area. The course focuses namely on cost control in processes and activities management to be able to control the size of product costs. The focus is on costing, budgeting and also on utilization of the accounting information. In the financial area the emphases is on calculation of the size of working capital, management of liability items and on financial analyses. The problems of investment projects assessment are explained.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 37

The role of the block: PV

Code of the group: 12N\*\*3Q--JV

Name of the group: 2012 N 3.sem povinná jazyková výuka

Requirement credits in the group: In this group you have to gain 2 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 2 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) **English - Preparatory Course / FME** 7 2 2043081 0P+2C P\/ Ilona Šimice, Michaela Schusová, Veronika Kratochvílová, Eliška Vítková, Hana Volejníková Nina Procházková Ayyub Czech - Preparatory Course 2043086 Ζ 0P+2C Michaela Schusová, Hana Volejníková, Petr Laurich French - Preparatory Course / FME 2043083 Ζ 2 0P+2C Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela PV Schusová (Gar.)

2043082	German - Lower Intermediate Course Michaela Schusová, Eliška Vítková, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	Z	2	0P+2C	*	PV
2043085	Russian - Preparatory Course / FME Michaela Schusová, Eliška Vítková, Hana Volejníková, Dušana Jirovská Eliška Vítková	Z	2	0P+2C	*	PV
2043084	Spanish - Preparatory Course / FME Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková	Z	2	0P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12N\*\*3Q--JV Name=2012 N 3.sem povinná jazyková výuka

naracteristics of the courses of this group of Study Plan: Code=12N-3QJV Name=2012 N 3.sem povini	ia jazykova vyt	uka
2043081 English - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about	them. Writing in a sir	mple way about
amiliar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2.		
2043086 Czech - Preparatory Course	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about	them. Writing in a sir	mple way about
amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2043083 French - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about	them. Writing in a sir	mple way about
amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2043082 German - Lower Intermediate Course	Z	2
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations w	hich a student meets	s either at schoo
or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improve	ment of professional	language.
2043085 Russian - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about	them. Writing in a sir	mple way about
amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2043084 Spanish - Preparatory Course / FME	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about	them. Writing in a sir	mple way about
amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.		

Code of the group: 12N\*\*3Q--JZ

Name of the group: 2012 N 3.sem povinná jazyková zkouška

Requirement credits in the group: In this group you have to gain 1 credit

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 1 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2041081	English - Master Exam Ilona Šimice, Michaela Schusová, Veronika Kratochvílová, Eliška Vítková, Hana Volejníková, Nina Procházková Ayyub Nina Procházková Ayyub	ZK	1	0P+0C	*	PV
2041086	Czech- Master Exam Michaela Schusová, Hana Volejníková, Petr Laurich	ZK	1	0P+0C	*	PV
2041083	French - Master Exam / FME Michaela Schusová, Eliška Vítková, Dušana Jirovská Dušana Jirovská Michaela Schusová (Gar.)	ZK	1	0P+0C	*	PV
2041082	German - Master Exam / FME Michaela Schusová, Eliška Vítková, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	ZK	1	0P+0C	*	PV
2041085	Russian - Master Exam / FME Michaela Schusová, Eliška Vítková, Hana Volejníková, Dušana Jirovská, Petr Zitko Eliška Vítková	ZK	1	0P+0C	*	PV
2041084	Spanish - Master Exam / FME Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková	ZK	1	0P+0C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12N\*\*3Q--JZ Name=2012 N 3.sem povinná jazyková zkouška English - Master Exam Mapped to the level of Common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. 2041086 Czech- Master Exam ZK 2041083 French - Master Exam / FME Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language. 2041082 German - Master Exam / FME ZK Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language. Russian - Master Exam / FME Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.

2041084 Spanish - Master Exam / FME

Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement of professional language.

Code of the group: 12NS\*1Q-VMI

Name of the group: 2012 NSTI 1.sem 1povvol VMI

Requirement credits in the group: In this group you have to gain 4 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 4 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182001	Physical chemistry Jaromír Štancl Radek Šulc Radek Šulc (Gar.)	KZ	4	2P+1C	*	PV
2022010	Physical Foundations of Advanced Technologies Tomáš Horaž ovský, Petr VI ák, Zden k Tolde Petr VI ák (Gar.)	KZ	4	2P+1C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12NS\*1Q-VMI Name=2012 NSTI 1.sem 1povvol VMI

2182001 Physical chemistry

Basic principles of physical chemistry in the field assuming real behavior especially that are demonstrated on technical applications. Volumetric properties of fluids. Thermodynamic properties of fluids. Phase equilibria. Solution Thermodynamics. Thermochemistry. Chemical reaction equilibrium.

2022010 Physical Foundations of Advanced Technologies KZ 4

Vacuum technology: theoretical foundations, vacuum pumps, gauges for low pressure measurements, applications in engineering. Gas discharges, physical and plasmochemical methods of surface modification and coatings deposition. Lasers: laser fundamentals, laser categories, laser technology application in mechanical engineering. Piezoelectricity: fundamentals, application in technology, ultrasound generation, piezoelectric pumps, nanofeeds.

Code of the group: 12NS\*3Q-VMI

Name of the group: 2012 NSTI 3.sem 1povvol VMI

Requirement credits in the group: In this group you have to gain 5 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 5 Note on the group:

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Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2332010	Design of the production of castings, forgings, stampings and welded parts	KZ	5	1P+4C	Z	PV
2322043	Project-heat treatment Elena ižmárová	KZ	5	1P+4C	*	PV
2342119	Technical Standardization, Quality, Metrology Pavel Novák	KZ	5	1P+4C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12NS\*3Q-VMI Name=2012 NSTI 3.sem 1povvol VMI

2332	2010	Design of the production of castings, lorgings, stampings and welded parts	nZ	) o			
Princip	rinciples for the preparation of production of machine parts with respect to the required quality and production efficiencies. Design of manufacturing processes, tools, equipment and						
machi	nery in foundries,	smitheries, mills and welding shops. Adjustments to design machine parts with regard to manufacturing technology, materials a	and prescribed vo	lume production.			
Deterr	mination of techno	logical additions, production conditions, parameters and production times. Basic capacity calculations. Data for cost calculat	ion. Design and c	omparison of			
alterna	atives.						

antomatives.			
2322043	Project-heat treatment	KZ	5
2342119	Technical Standardization, Quality, Metrology	KZ	5
The course aims to zoo	m coherence to students of technical standardization, metrology and quality and to acquaint them with the basic themes of the	nese fields.	

Code of the group: 12NS\*4Q-VMI-DP

Name of the group: 2012 NSTI 4.sem 1povvol VMI - DP

Requirement credits in the group: In this group you have to gain 10 credits Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 10 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2323998	Thesis Zde ka Jeníková	Z	10	0P+10C	*	PV
2333998	Diploma Thesis Aleš Herman	Z	10	0P+10C	*	PV
2343998	Diploma thesis	Z	10	0P+10C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12NS\*4Q-VMI-DP Name=2012 NSTI 4.sem 1povvol VMI - DP

2323998	Thesis	Z	10				
Preparation of a thesis	Preparation of a thesis under the instructions and guidance of a supervisor.						
2333998	Diploma Thesis	Z	10				
2343998	Diploma thesis	Z	10				
Sources of information	Sources of information in the field. Databases and corporate literature. Normalization. Search activity. News from the field of engineering technology. Principles of research and work						
in laboratories. The prin	sciples of work sofety in technological devices. Work on specialized tasks related to the facus of a thosis						

Code of the group: 12NS\*4Q-VMI

Name of the group: 2012 NSTI 4.sem 3povvol VMI

Requirement credits in the group: In this group you have to gain at least 15 credits (at most 18)

Requirement courses in the group: In this group you have to complete 3 courses

Credits in the group: 15 Note on the group:

2341063

determination of measurement uncertainty.

Technology of cutting with CAM

CAM systems for NC program generation for milling and turning operation. CAM system structure and new CNC technologies.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
2321504	Experimental Methods in Materials Science  Jana Sobotová	Z,ZK	6	2P+2C	*	PV
2321080	Material Engineering Jana Sobotová	Z,ZK	5	2P+2C	*	PV
2331027	Metallurgy of Casting Alloys Irena Kubelková	Z,ZK	5	2P+2C	*	PV
2321074	Nano and Biomaterials	Z,ZK	5	2P+2C	*	PV
2331076	Design of Surface Treatment	Z,ZK	5	2P+2C	*	PV
2341702	Industrial Metrology Libor Beránek, Petr Mikeš, Jan Šimota, Jan Urban Pavel Novák Libor Beránek (Gar.)	Z,ZK	5	2P+2C	*	PV
2341063	Technology of cutting with CAM Pavel Novák	Z,ZK	6	2P+2C	*	PV
2331507	Processing Technology of Plastics and Composites  Barbora Bryksí Stunová	Z,ZK	6	2P+2C	*	PV

#### Characteristics of the courses of this group of Study Plan: Code=12NS\*4Q-VMI Name=2012 NSTI 4.sem 3povvol VMI

Methods of diffraction of X-ray and electron diffraction (for the phase analysis to determine the residual stress, texture and analysis of lattice defects). Imaging methods: light and electron microscopy (preparation of sample and display characteristics, contrast theory). Advanced methods of physical and chemical microanalysis: scan-ning electron microscopy (emission, transmission and conductivity method). Electron probe microanalysis: wave-length and energy-dispersive X-ray spectroscopy, quantitative microanalysis, signal processing.  2321080							
electron microscopy (preparation of sample and display characteristics, contrast theory). Advanced methods of physical and chemical microanalysis: scan-ning electron microscopy (emission, transmission and conductivity method). Electron probe microanalysis: wave-length and energy-dispersive X-ray spectroscopy, quantitative microanalysis, signal processing.  2321080	2321504	Experimental Methods in Materials Science	Z,ZK	6			
(emission, transmission and conductivity method). Electron probe microanalysis: wave-length and energy-dispersive X-ray spectroscopy, quantitative microanalysis, signal processing.  2321080 Material Engineering Z,ZK 5  The course is an analysis of the fundamental approaches materials engineering as an interdisciplinary field of study which is based on physics, chemistry and other technical fields, but is also interested in knowledge of medicine, economics and ecology. It follows the courses Physical metallurgy, metal and non-metallic materials.  2331027 Metallurgy of Casting Alloys  The course is aimed at increasing knowledge of basic studies of foundry technology. It focuses mainly on the following topics: melting of gray iron, metallurgical treatment and its influence on the structure and properties of gray iron; production of the ductile cast iron; inoculation and modification of cast irons; production of the vermicular, malleable iron and of other special cast iron types; production and metallurgical treatment of cast steel; production and metallurgical treatment of aluminum and magnesium alloys; melt quality assurance methods; casting defects.  2321074 Nano and Biomaterials  Ano and Biomaterials  LZ,ZK  5  Introduction to nanomaterials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and nanomaterials, practical application - industry, energy, medicine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, sterilization. Morphology, roughness and tribological properties of the surface of biomaterials. Application of thin films and coatings.  2331076 Design of Surface Treatment  Z,ZK  5  Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and enviroment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	Methods of diffraction of X-ray and electron diffraction (for the phase analysis to determine the residual stress, texture and analysis of lattice defects). Imaging methods: light and						
Material Engineering  The course is an analysis of the fundamental approaches materials engineering as an interdisciplinary field of study which is based on physics, chemistry and other technical fields, but is also interested in knowledge of medicine, economics and ecology. It follows the courses Physical metallurgy, metal and non-metallic materials.  Metallurgy of Casting Alloys  The course is aimed at increasing knowledge of basic studies of foundry technology. It focuses mainly on the following topics: melting of gray iron, metallurgical treatment and its influence on the structure and properties of gray iron; production of the ductile cast iron; inoculation and modification of cast irons; production of the vermicular, malleable iron and of other special cast iron types; production and metallurgical treatment of cast steel; production and metallurgical treatment of aluminum and magnesium alloys; melt quality assurance methods; casting defects.  Nano and Biomaterials  Nano and Biomaterials  JAK  Introduction to nanomaterials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and nanomaterials, practical application - industry, energy, medicine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, sterilization. Morphology, roughness and tribological properties of the surface of biomaterials. Application of thin films and coatings.  Design of Surface Treatment  Z,ZK  Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and enviroment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	electron microscopy (pre	eparation of sample and display characteristics, contrast theory). Advanced methods of physical and chemical microanalysis	: scan-ning electro	on microscopy			
The course is an analysis of the fundamental approaches materials engineering as an interdisciplinary field of study which is based on physics, chemistry and other technical fields, but is also interested in knowledge of medicine, economics and ecology. It follows the courses Physical metallurgy, metal and non-metallic materials.  2331027 Metallurgy of Casting Alloys Z,ZK 5  The course is aimed at increasing knowledge of basic studies of foundry technology. It focuses mainly on the following topics: melting of gray iron, metallurgical treatment and its influence on the structure and properties of gray iron; production of the ductile cast iron; inoculation and modification of cast irons; production of the vermicular, malleable iron and of other special cast iron types; production and metallurgical treatment of aluminum and magnesium alloys; melt quality assurance methods; casting defects.  2321074 Nano and Biomaterials  Z,ZK 5  Introduction to nanomaterials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and nanomaterials, practical application - industry, energy, medicine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, sterilization. Morphology, roughness and tribological properties of the surface of biomaterials. Application of thin films and coatings.  2331076 Design of Surface Treatment Z,ZK 5  Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and enviroment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	(emission, transmission	and conductivity method). Electron probe microanalysis: wave-length and energy-dispersive X-ray spectroscopy, quantitative	microanalysis, si	gnal processing.			
but is also interested in knowledge of medicine, economics and ecology. It follows the courses Physical metallurgy, metal and non-metallic materials.  2331027   Metallurgy of Casting Alloys   Z,ZK   5 The course is aimed at increasing knowledge of basic studies of foundry technology. It focuses mainly on the following topics: melting of gray iron, metallurgical treatment and its influence on the structure and properties of gray iron; production of the ductile cast iron; inoculation and modification of cast irons; production of the vermicular, malleable iron and of other special cast iron types; production and metallurgical treatment of aluminum and magnesium alloys; melt quality assurance methods; casting defects.  2321074   Nano and Biomaterials   Z,ZK   5 Introduction to nanomaterials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and nanomaterials, practical application - industry, energy, medicine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, sterilization. Morphology, roughness and tribological properties of the surface of biomaterials. Application of thin films and coatings.  2,ZK   5 Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and enviroment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	2321080	Material Engineering	Z,ZK	5			
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Nano and Biomaterials Introduction to nanomaterials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and nanomaterials, practical application - industry, energy, medicine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, sterilization. Morphology, roughness and tribological properties of the surface of biomaterials. Application of thin films and coatings.  2331076  Design of Surface Treatment Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and enviroment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	other special cast iron ty	pes; production and metallurgical treatment of cast steel; production and metallurgical treatment of aluminum and magnesiu	ım alloys; melt qu	ality assurance			
Introduction to nanomaterials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and nanomaterials, practical application - industry, energy, medicine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, sterilization. Morphology, roughness and tribological properties of the surface of biomaterials. Application of thin films and coatings.  2331076 Design of Surface Treatment  Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and environment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	methods; casting defect	S.					
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and tribological properties of the surface of biomaterials. Application of thin films and coatings.  2331076 Design of Surface Treatment Z,ZK 5  Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and environment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	Introduction to nanomat	erials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and n	anomaterials, pra	ctical application			
2331076 Design of Surface Treatment Z,ZK 5 Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and environment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	- industry, energy, medic	cine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, str	erilization. Morpho	ology, roughness			
Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and environment engineering parts. And also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	and tribological properti	es of the surface of biomaterials. Application of thin films and coatings.					
also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	2331076	Design of Surface Treatment	Z,ZK	5			
	Subject is specialized to design of convenient technology and operations surface treatments. Takes respect up to material, quality, construction and environment engineering parts. And						
2341702 Industrial Metrology Z,ZK 5	also tekes respect up to	best accessible techniques agreable integrated prevention dle EU laws.					
	2341702	Industrial Metrology	Z,ZK	5			

Z,ZK

Theoretical introduction to measurement on coordinate measuring machines (CMMs). Students will acquainted familiar with the construction and sensors of CMM. They will gain important knowledge of computer tomography and reverse engineering. We introduce them to the CMM application in industry. This is related to method of MSA, including the

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2331507

# List of courses of this pass:

Code	Name of the course	Completion	Credits
2022010	Physical Foundations of Advanced Technologies	KZ	4
	gy: theoretical foundations, vacuum pumps, gauges for low pressure measurements, applications in engineering. Gas discharges, p		
methods of surfa	ace modification and coatings deposition. Lasers: laser fundamentals, laser categories, laser technology application in mechanical en fundamentals, application in technology, ultrasound generation, piezoelectric pumps, nanofeeds.	ngineering. Piezoel	ectricity:
2041081	English - Master Exam	ZK	1
	el of Common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations which a		
	te and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		nguage.
2041082	German - Master Exam / FME I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	ZK	or at school
	time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improveme		
2041083	French - Master Exam / FME	ZK	1
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	1	
or in his/her free	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme	nt of professional la	anguage.
2041084	Spanish - Master Exam / FME	ZK	1
Mapped to the leve	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	student meets eith	er at school
or in his/her free	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme	nt of professional la	anguage.
2041085	Russian - Master Exam / FME	ZK	1
	l of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		
	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme		
2041086	Czech- Master Exam	ZK	1
2043081	English - Preparatory Course / FME	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A		way about
2043082	German - Lower Intermediate Course	Z	2
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	_	. –
	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme		
2043083	French - Preparatory Course / FME	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2043084	Spanish - Preparatory Course / FME	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
004000	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	_	
2043085	Russian - Preparatory Course / FME	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	writing in a simple	e way about
2043086	Czech - Preparatory Course	7	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	_
7 timi. Ondorotandin	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	. Witting in a omipie	way about
2182001	Physical chemistry	KZ	4
	physical chemistry in the field assuming real behavior especially that are demonstrated on technical applications. Volumetric proper	ties of fluids. Therr	nodynamic
	properties of fluids. Phase equilibria. Solution Thermodynamics. Thermochemistry. Chemical reaction equilibrium.		
2321071	Physical metallurgy	Z,ZK	5
	with the explanation of processes and procedures which form the the theoretical fundamentals of engineering and mechanical engine		•
is laid on thermo	dynamics, diffusion, crystal lattice structures and their imperfections, phase transformations and hardening and dehardening proces	ses. Attention is als	so paid to
2224072	degradation processes, i.e. failure of materials, fatigue, creep, corrosion, wear and radiation failures.	7.71/	
2321072	Metallic Materials Classification of metallic materials. Low-carbon weldable steels with higher strength. Stainless steels. Austenitic stainless steels, ferritic	Z,ZK	5
	g steels. Tool steels. Non-ferrous metal alloys - basic classification. Copper and copper alloys. Aluminium and aluminium alloys. Titar		-
	treatment of metallic materials		,
2321073	Non-metallic metals	Z,ZK	4
	the entire range of non-metallic engineering materials, a majority of them are devoted to polymer materials which are most frequently uses the entire range of non-metallic engineering materials, a majority of them are devoted to polymer materials which are most frequently uses.	1	
and the volume of t	heir consumption highly exceeds that of the rest of non-metallic materials. Emphasis is laid on explanation and realization of basic to	erms in the field of	non-metallic
	ectures also deal with standardization, environmental and economical aspects which follow from the different properties of non-meta-		
2321074	Nano and Biomaterials	Z,ZK	5
	omaterials and nanotechnology, links between nanomaterials and biomaterials, nanopowders, nanotubes, fluereny, surface and nano		
- inaustry, energy, r	nedicine. Properties and structure of materials and their relationship to the live system. Immune system, biocompatibility tests, sterili	zation. Morphology	, rougnness
2321075	and tribological properties of the surface of biomaterials. Application of thin films and coatings.	Z,ZK	4
	Integrity of materials of continuum mechanics; finite element method. Matrix and tensor calculus of stress and strain. Linear and nonlinear fracture mecha		
9 # 1111 1431/3 1	of integrity of structures, operation, safety and reliability of structures with defects.		55.16160115

0004000		7.71/	
2321080 The course is an a	Material Engineering analysis of the fundamental approaches materials engineering as an interdisciplinary field of study which is based on physics, chemis	Z,ZK	5
	at is also interested in knowledge of medicine, economics and ecology. It follows the courses Physical metallurgy, metal and non-metal	,	
2321504	Experimental Methods in Materials Science	Z,ZK	6
	action of X-ray and electron diffraction (for the phase analysis to determine the residual stress, texture and analysis of lattice defects).	0 0	•
	py (preparation of sample and display characteristics, contrast theory). Advanced methods of physical and chemical microanalysis: so	•	
2322042	ssion and conductivity method). Electron probe microanalysis: wave-length and energy-dispersive X-ray spectroscopy, quantitative mic	KZ	4
	Advanced materials in engineering materials provide an overview of selected recent construction materials. It is presented the development and the physico-mechanical		
	iost common types of these materials. Demonstrated their fundamental characteristics, including economic considerations and international common types of these materials.		
	presented their technological capabilities, usability and design methods for marking.		-
2322043	Project-heat treatment	KZ	5
2323998	Thesis  Preparation of a thesis under the instructions and guidance of a supervisor.	Z	10
2331012	Theory and Practise of Metal Forming	Z,ZK	5
	netal forming theory. Stress-strain relationships in elasticity and plasticity. Methods for analyzing metalworking processes. Workability of		
in metalforming a	and their influence on the forming process. Fundamentals of theory and practice of basic bulk metal and sheet metalworking processe loads in forming, selection of forming equipment.	es. Calculation of	energy and
2331027	Metallurgy of Casting Alloys	Z,ZK	5
	med at increasing knowledge of basic studies of foundry technology. It focuses mainly on the following topics: melting of gray iron, me	-	
	tructure and properties of gray iron; production of the ductile cast iron; inoculation and modification of cast irons; production of the ver		
orner special cast	iron types; production and metallurgical treatment of cast steel; production and metallurgical treatment of aluminum and magnesium methods; casting defects.	alloys; melt qualit	y assurance
2331076	Design of Surface Treatment	Z.ZK	5
	pesign of Surface Treatment cechnology and operations surface treatments. Takes respect up to material, quality, construction and envi		
,,	also tekes respect up to best accessible techniques agreable integrated prevention dle EU laws.	323	5,
2331090	Theory of Casting	Z,ZK	5
roperties of liquid	d alloys. Crystallization of foundry alloys. Volume changes during cooling and solidification, and their consequences. Principles of Fee	ding. Controlled s	olidification
teraction the met	tal with the mold. Defects resulting from shrinkage. Cast iron with lamellar graphite. Cast iron with spheroidal graphite. Malleable cast		th vermicula
	graphite. Iron for special use. Metallurgy of steel. Metallurgy of aluminum alloys, magnesium and titanium. Alloys of copper		
2331097	Theory of Joining and Cutting	Z,ZK	5
ourse covers tecr	hnologies of welding, brazing and thermal cutting. Description of joining methods, their principals, equipment and typical application ir	n the industry is d	
o wolding tochnol		nt of joint quality h	
e welding technol	logies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also topic of material weldability and assessment	nt of joint quality b	y destructiv
	logies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also topic of material weldability and assessment and non-destructive methods.		
2331507 2332010 rinciples for the pr	logies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also topic of material weldability and assessment and non-destructive methods.  Processing Technology of Plastics and Composites  Design of the production of castings, forgings, stampings and welded parts reparation of production of machine parts with respect to the required quality and production efficiencies. Design of manufacturing production of machine parts with respect to the required quality and production efficiencies.	Z,ZK KZ ocesses, tools, ed	6 5 quipment an
2331507 2332010 rinciples for the preachinery in found Determination of	logies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also topic of material weldability and assessment and non-destructive methods.  Processing Technology of Plastics and Composites  Design of the production of castings, forgings, stampings and welded parts reparation of production of machine parts with respect to the required quality and production efficiencies. Design of manufacturing profess, smitheries, mills and welding shops. Adjustments to design machine parts with regard to manufacturing technology, materials and technological additions, production conditions, parameters and production times. Basic capacity calculations. Data for cost calculation alternatives.	Z,ZK KZ ocesses, tools, ec prescribed volum n. Design and cor	6 5 quipment an
2331507 2332010 rinciples for the prachinery in found Determination of	logies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also topic of material weldability and assessment and non-destructive methods.  Processing Technology of Plastics and Composites  Design of the production of castings, forgings, stampings and welded parts reparation of production of machine parts with respect to the required quality and production efficiencies. Design of manufacturing profess, smitheries, mills and welding shops. Adjustments to design machine parts with regard to manufacturing technology, materials and technological additions, production conditions, parameters and production times. Basic capacity calculations. Data for cost calculation alternatives.  Special Technologies of Surface Treatments	Z,ZK KZ ccesses, tools, ec prescribed volum n. Design and cor	6 5 quipment an e production mparison of
2331507 2332010 rinciples for the prachinery in found Determination of 2332025 pecial surface trea	logies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also topic of material weldability and assessment and non-destructive methods.  Processing Technology of Plastics and Composites  Design of the production of castings, forgings, stampings and welded parts reparation of production of machine parts with respect to the required quality and production efficiencies. Design of manufacturing profess, smitheries, mills and welding shops. Adjustments to design machine parts with regard to manufacturing technology, materials and technological additions, production conditions, parameters and production times. Basic capacity calculations. Data for cost calculation alternatives.  Special Technologies of Surface Treatments atment technology, advanced technology trends. Measurement of process parameters in surface technology, computer technology in	Z,ZK KZ pcesses, tools, ec prescribed volum n. Design and cor KZ n the managemen	6 5 quipment ar e productio nparison of 4 t and contr
2331507 2332010 rinciples for the praction of the practical surface treatment and the practical surfac	logies (SMAW, GMAW, GTAW, SAW), oxyacetylene cutting, plasma cutting. Covered is also topic of material weldability and assessment and non-destructive methods.  Processing Technology of Plastics and Composites  Design of the production of castings, forgings, stampings and welded parts reparation of production of machine parts with respect to the required quality and production efficiencies. Design of manufacturing profess, smitheries, mills and welding shops. Adjustments to design machine parts with regard to manufacturing technology, materials and technological additions, production conditions, parameters and production times. Basic capacity calculations. Data for cost calculation alternatives.  Special Technologies of Surface Treatments atment technology, advanced technology trends. Measurement of process parameters in surface technology, computer technology in the Special Surface preparation, combined pretreatment, pretreatment quality control. Conversion layer, in-process protection, anodical controls.	Z,ZK KZ ocesses, tools, ec prescribed volum n. Design and cor KZ othe management c oxidation. Testin	6 5 quipment ar e productio mparison of 4 and contr g and quali
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2342119	Technical Standardization, Quality, Metrology	KZ	5
The co	urse aims to zoom coherence to students of technical standardization, metrology and quality and to acquaint them with the basic then	nes of these fields	i.
2343998	Diploma thesis	Z	10
Sources of inform	ation in the field. Databases and corporate literature. Normalization. Search activity. News from the field of engineering technology. Pr	inciples of researc	h and work
	in laboratories. The principles of work safety in technological devices. Work on specialized tasks related to the focus of a these	sis.	
2381093	Ekonomics and Finance	Z,ZK	5
The topics of this	course are tightly linked to the topics of the course Enterprise Management Economics. It develops more in deep basic set of knowle	dge and skills of r	nechanical
engineers in mar	nagerial, economic and financial area. The course focuses namely on cost control in processes and activities management to be able	to control the size	of product
costs. The focu	s is on costing, budgeting and also on utilization of the accounting information. In the financial area the emphases is on calculation of	the size of workin	g capital,
	management of liability items and on financial analyses. The problems of investment projects assessment are explained.		
2382052	Business and Management	KZ	3
This course introdu	ices entrepreneurship as a way relevant to student's future professional career. Technically oriented students who haven't any specialized	l economical and r	nanagement
courses in their cu	ırriculum are introduced to the fundamental issues needed to start of their own businesses using simple and understandable form. To	study the basic in	formation of
individual topics e-	learning materials accessible on the web portal are prepared. Acquired knowledge is then practiced at workshops involving external lector	s. Evaluation and	classification
	is based on the e-learning tests and student?s case study, related to small business issues (mostly the business plan of a start-up of	company).	
2383011	Business Ethics and Managerial Psychology	Z	2
This course is des	gned as an introduction to thinking ethically. Ethics really has to do with all levels-acting ethically as individuals, creating ethical organi	zations and gover	nments, and
	making our society as a whole ethical in the way it treats everyone.		

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2024-07-27, time 08:25.