## Study plan

## Name of study plan: 12 74 79 00 BTZSI 2012 A - prezen ní anglicky

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch: Program of study: Welcome page Type of study: unknown full-time

Required credits: 218
Elective courses credits: 0
Sum of credits in the plan: 218
Note on the plan: t etí pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 210

The role of the block: P

Code of the group: 12B-KMENA TZI STR

Name of the group: 01 2012 souhrn skupin 12B\*AiP-KMEN pro i od 1 do 6 Requirement credits in the group: In this group you have to gain 149 credits Requirement courses in the group: In this group you have to complete 35 courses

Credits in the group: 149

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
E012035	Algorithmization and Programming Petr Svá ek, Marta ertíková, David Trdli ka Marta ertíková Petr Svá ek (Gar.)	KZ	4	1P+2C	*	Р
E371047	Automatic Control Jaromír Fišer Jaromír Fišer (Gar.)	Z,ZK	5	3P+15C+05L	Z,L	Р
E182019	Chemistry Jaromír Štancl Jaromír Štancl (Gar.)	KZ	3	2P+1C	*	Р
E012037	Computer Graphics Nikola Pajerová, Ivana Linkeová Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Р
E372041	Computer Support for Study	KZ	3	1P+1C	*	Р
E011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	Z	Р
E141504	Electrical Circuits and Electronics  Jan Chyský, Martin Novák Martin Novák Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
E141505	Electrical Machines and Drives Jan Chyský, Martin Novák, Jaroslav Novák Martin Novák Jaroslav Novák (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
E131002	Engineering Design II  Martin Dub	Z,ZK	4	2P+3C	2	Р
E133013	Engineering Design III. František Lopot, Jan Hoidekr Jan Hoidekr (Gar.)	Z	2	0P+2C	*	Р
E133014	Engineering Design IV. František Lopot, Jan Hoidekr Jan Hoidekr (Gar.)	Z	2	0P+2C+0L	*	Р
E153005	Fundamentals of Energy Conversions	Z	1	1P+1C	*	Р
E131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
E381054	Management and Economics of the Enterprise  Michal Kavan Michal Kavan Michal Kavan (Gar.)	Z,ZK	4	2P+2C	*	Р
E322029	Materials Science I. Jakub Horník, Veronika Mazá ová Jakub Horník Jakub Horník (Gar.)	KZ	3	2P+0C+1L	. L	Р
E321039	Materials Science II. Jakub Horník, Veronika Mazá ová, Jana Sobotová Jakub Horník Jakub Horník (Gar.)	Z,ZK	4	2P+2L	*	Р
E011056	Mathematics I.	Z,ZK	8	4P+4C	Z	Р

E011062	Mathematics II Stanislav Kra mar	Z,ZK	8	4P+4C	*	Р
E011009	Mathematics III. Olga Majlingová, Stanislav Kra mar Stanislav Kra mar (Gar.)	Z,ZK	5	2P+2C	*	Р
E372083	Measurement in Engineering Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
E311101	Mechanics I. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Zbyn k Šika Zbyn k Šika (Gar.)	Z,ZK	4	2P+2C	*	Р
E311102	Mechanics II. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Václav Bauma Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
E181026	Momentum, Heat and Mass Transfer Martin Dostál, Vojt ch B Iohlav Martin Dostál Martin Dostál (Gar.)	Z,ZK	5	3P+1C	*	Р
E011049	Numerical Mathematics Petr Svá ek, Marta ertíková, David Trdli ka, Jan Karel Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	*	Р
E021041	Physics I.	Z,ZK	7	4P+1C	*	Р
E021025	Physics II.	Z,ZK	4	1P+2C	*	Р
E331068	Technology I.	Z,ZK	5	2P+2C	*	Р
	Technology II.	Z,ZK	5	2P+2L	*	Р

E012035 Algorithmization and Programming Programming in MRTLAB and its programming in Amazing and MRTLAB command line. Elementary commands, variable, assignment and expression. Marrices, vectors and operations. Writting M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MRTLAB. Graphical commands. Matrix operations. Systems of linear equations. Scripts and functions. Structure of program. Variables, expressions, assignment, and input / output commands, switch. For cycle. Arrays and files. Pointers. Structures. Algorithmization of simple programs. minimum, mean norm. numerical integration. Disection method. Newton method. The programs of the sequence of the programs of the programs. Dise the programs of the programs. Dise the programs of the programs. The course also concentrates on logic control and control into programs of the programs of the programs. The course also concentrates on logic control and control in programs of the programs. The course also concentrates on logic control and control via programmable logic control operations. Some seminates are arranged in laboratories where practical skills and control engineers. The course also concentrates on logic control and control via programs of the programs. The course also concentrates on logic control and control via programs of the programs. The course also concentrates on logic control and control via programs are arranged in laboratories where practical skills and control engineers. The course also concentrates on logic control and control via programs are arranged in laboratories where precisions of the laboratory discount of the programs. The course and programs of the	pro i od 1 do 6	This courses of this group of study Fluin. Sous-125 RimeN/C121 STR Humo-01 2012 Soun		
Writing M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systems of linear equations. Scripts and functions. Structure of program. Variables, expressions, assignment, and input output commands, switch For cycle. Arrays and files. Prointers. Structures. Algorithmization of simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, metrix operations. Direct methods for solution of systems of linear equations. E371047  Automatic controller are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with MATLAB software as a common platform of control engineers (MATLAB is used on all including most of the laboratory classes).  E182019  Chemistry  General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is contented upon the material properties measurement.  E012037  Computer Graphics  The course introduces students time material properties of the curves and surfaces in computer graphics and their visualisation. The Rhinoceros - NURBs modelling for Windows is used to demonstrate the geometrical properties of the curves and surfaces in computer graphics and their visualisation. The Rhinoceros - NURBs modelling for Windows is used to demonstrate the geometrical	E012035	Algorithmization and Programming	KZ	4
and functions. Structure of program. Variables, expressions, assignment, and input / output commands, switch. For cycle. Arrays and files. Pointers. Structures. Algorithmization of simple programs: minimum, mean, norm, numerical integration, bisection method. Newton method, matrix operations. Direct methods for solution of systems of linear equations. E371047  Automatic Control  Automatic Control  Automatic Control  Automatic Controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with MATLAB software as a common platform of control engineers (MATLAB is used on all including most of the laboratory classes).  E182019  Chemistry  Chemistry  Connected on discovered and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement.  E012037  Computer Graphics  KZ 3  The subject is focused on the mathematical theory of the curves and surfaces in computer graphics and their visualisation. The Rhinoceros - NURBs modelling for Windows is used to demonstrate the geometrical properties of the curves and surfaces.  E372041  Computer Graphics  The subject is focused on geometric objects of the curves and surfaces.  E372041  Computer Support for Study  The course introduces students into creating technical and professional documents on computers or Web and into realizing technical	Programming in MATLA	AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. M	atrices, vectors and	d operations.
Simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations.	Writting M-script. Input	and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. \$	Systems of linear ed	quations. Scripts
Automatic Control	and functions. Structure	e of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers.	Structures. Algorith	mization of
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like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control engineering methods are trained. Students begin to work with MRTLAB software as a common platform of control engineers (MATLAB is used on all including most of the laboratory classes).  E182019   Chemistry   KZ   3   General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms the point of view of mechanical and process engineering. Physical chemistry forms, 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement.  E012037   Computer Graphics   KZ   3   The subject is focused on the mathematical theory of the curves and surfaces in computer graphics and their visualisation. The Rhinoceros - NURBS modelling for Windows is used to demonstrate the geometrical properties of the curves and surfaces.  E372041   Computer Support for Study   Computer Support for Stud	E371047	Automatic Control	Z,ZK	5
via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with MATLAB software as a common platform of control engineers (MATLAB is used on all including most of the laboratory classes).  E182019   Chemistry   Chemistry   Chemistry   Chemistry   Chemistry   Chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction en engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement.  E012037   Computer Graphics   KZ   3				
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oriented upon the material properties measurement.  E012037 Computer Graphics The subject is focused on the mathematical theory of the curves and surfaces.  E372041 Computer Support for Study The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and presenting a web page.  E011021 Constructive Geometry E141504 Incoduction into theory of electrical Circuits and Electronics Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. Using Symbolic-Complex method and Fourier transformation for analysis AC circuits supplied with harmonic signal. E1. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital circuits, converters, microprocessor.  E141505 Electrical Machines and Drives AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop, Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, starting, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II Z,ZK 4  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133014 Engineering	General chemistry from	the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and proper	ties of matter, thern	nodynamics,
E012037 Computer Graphics The subject is focused on the mathematical theory of the curves and surfaces in computer graphics and their visualisation. The Rhinoceros - NURBS modelling for Windows is used to demonstrate the geometrical properties of the curves and surfaces.  E372041 Computer Support for Study The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and presenting a web page.  E011021 Constructive Geometry The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  E141504 Electrical Circuits and Electronics Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. Using Symbolic-Comptex method and Fourier transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505 Electrical Machines and Drives AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II Engineering Design III.  E2 2 Information about general principl	phase equilibrium, che	mical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioc	hemistry. Laborator	y practice is
The subject is focused on the mathematical theory of the curves and surfaces in computer graphics and their visualisation. The Rhinoceros - NURBS modelling for Windows is used to demonstrate the geometrical properties of the curves and surfaces.    Say 2041	oriented upon the mate	rial properties measurement.		
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The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and presenting a web page.  E011021 Constructive Geometry The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  E141504 Electrical Circuits and Electronics Z,ZK 4  Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. Using Symbolic-Complex method and Fourier transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505 Electrical Machines and Drives AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control, Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II Typical Engineering Design III. Engineering Design III. Engineering Design III. Z 2 2 Information about general principles of a new technical product design, stages of development of a new product, the	E372041	Computer Support for Study	KZ	3
E011021 Constructive Geometry The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  E141504 Electrical Circuits and Electronics Application in electronic size in the space - curves, surfaces and solids and their properties and mutual relations.  E141504 Electrical Circuits and Electronics E141504 Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. Using Symbolic-Complex method and Fourier transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505 Electrical Machines and Drives AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II  E131002 Engineering Design II  T2,ZK 4  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their k	The course introduces		with the use of com	puters. Students
The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  E141504   Electrical Circuits and Electronics   Z,ZK   4   Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. Using Symbolic-Complex method and Fourier transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505   Electrical Machines and Drives   Z,ZK   4   AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002   Engineering Design II   Z,ZK   4   Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013   Engineering Design III.   Z   2   E133014   Engineering Design IV.   Z   2   Information about general principles of a new technical product design, stages of de	gain practical skills by	creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and pres	senting a web page	<b>).</b>
E141504 Electrical Circuits and Electronics  Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. Using Symbolic-Complex method and Fourier transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505 Electrical Machines and Drives  AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II  Z,ZK 4  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III.  Z 2  Engineering Design IV.  Figure 4 and 5 circuits as DC and AC. Transient supplied and AC. Transient states in circuits with accumulators of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical to	E011021	Constructive Geometry	Z,ZK	6
Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. Using Symbolic-Complex method and Fourier transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505 Electrical Machines and Drives Z,ZK 4  AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II Z,ZK 4  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III. Z 2  E133014 Engineering Design IV. Z 2  Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	The subject is focused	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		
method and Fourier transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505 Electrical Machines and Drives Z,ZK 4  AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage distribution system.  E131002 Engineering Design II  T,ZK 4  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III.  Z 2  E133014 Engineering Design IV.  Z 2  Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	E141504	Electrical Circuits and Electronics	Z,ZK	4
semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.  E141505 Electrical Machines and Drives Z,ZK 4  AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II  T,ZK 4  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III.  Z 2  E133014 Engineering Design IV.  Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	Introduction into theory	of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	of energy. Using Sy	mbolic-Complex
E141505   Electrical Machines and Drives   Z,ZK   4   AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002   Engineering Design II   Z,ZK   4   Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013   Engineering Design III.   Z   2   E133014   Engineering Design IV.   Z   2   Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	method and Fourier tra	nsformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Princi	ple and typical para	ameters of basic
E141505 Electrical Machines and Drives  AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design IV.  Z 2  Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	semiconductor compor	ents. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits.	Principle of analog	ue and digital
AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002	signal processing. Logi	cal circuits, converters, microprocessor.		
3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002	E141505	Electrical Machines and Drives	Z,ZK	4
control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.  E131002 Engineering Design II  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III.  Z 2  E133014 Engineering Design IV.  Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	AC el. curcuits. Electric	al power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Tr	ansformer, principle	e, construction,
E131002 Engineering Design II Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III. Engineering Design IV. Z 2 Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	3-phase transformer, o	perating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, spec	ed-torque character	istic, speed
E131002 Engineering Design II  Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III.  Z 2  E133014 Engineering Design IV.  Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	control. Synchronous m	nachines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque char	acteristic. Low-volta	age instruments.
Theoretical fundamentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013 Engineering Design III.  Engineering Design IV.  Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	Low-voltage distribution	n system.		
tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.  E133013	E131002	Engineering Design II	Z,ZK	4
E133013   Engineering Design III.   Z 2 2   E133014   Engineering Design IV.   Z 2   Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	Theoretical fundamenta	als of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolera	ncing, surface text	ure, geometrical
E133013     Engineering Design III.     Z     2       E133014     Engineering Design IV.     Z     2       Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	tolerance, dimensional	loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and	practice their know	ledge from
E133014 Engineering Design IV. Z 2 Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	lectures.			
Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	E133013	Engineering Design III.	Z	2
Information about general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is to propose a rivalrous product	E133014	Engineering Design IV.	Z	2
including. Designing of a dribling jig. A drilling jig is a device by means of which holes on many duplicate parts may be drilled exactly alike.	Information about gene		ent is to propose a r	ivalrous product
	including. Designing of	a dribling jig. A drilling jig is a device by means of which holes on many duplicate parts may be drilled exactly alike.		

E153005	Fundamentals of Energy Conversions	Z	1
	the reasons, procedures and consequences of energy conversions from sources to applications. 1. Introduction. Energy, form		
	irces to cover world energy consumption. World reserves, advances and depletion of primary energy sources. Situation on the operties. Secondary fuels. Combustion of fossil fuels. Combustion equipment and their efficiency. Ecological consequences o		
* * * * * * * * * * * * * * * * * * * *	s comparison cycle. Thermal efficiency. 4. Rankine steam cycle, thermal and real efficiency. Steam circulation carnotization. Su		
=	nal heat transfer, carnotization. thermal and real efficiency. Combine cycle power plant. 6. Cooling cycles, heat pumps, organic	=	- 1
fluid, efficiency x CoF. 7	. Engines with internal combustion (Otto, Diesel, Atkinson, Miller, etc), Stirling cycle, Family of Kalina cycles. 8. Renewable so	urces, application	n, importance,
	ormation (heat->Electr.). Special applications.		
E131512	Machine Elements and Mechanisms I.	Z,ZK	6
	ents (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters or drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloade		
· , , ,	y joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple as:	J	
	ng systemes, mechanical joints, material joints, joining elements, mechanical transmissions, dimensioning, loading capacity,	•	
E381054	Management and Economics of the Enterprise	Z,ZK	4
	ended for a wide range of students from all over the world who have successfully studied it for many previous years. The teach		- 1
•	its with the basic procedures, methodologies and practice of management and economics of a modern, especially engineering		
	e, marketing and operational-production management and economics. The focus is on a prosperous enterprise operating wit. In addition to lectures and exercises, students also learn to be independent in their individual presentations, dedicated to the		
advanced business mar		, accigned protect	oloniai topico oi
E322029	Materials Science I.	KZ	3
	te of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation of the control o	rmation, recrysta	Illization and
fracture of materials, str	ucture and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in	on-carbon phase	diagram.
E321039	Materials Science II.	Z,ZK	4
	urgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal an	d thermo-mechar	nical processing,
	loys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.	7 71/	
E011056	Mathematics I.  mphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connec	Z,ZK	8 ocents Students
	procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic area		
-	omial, integral as a limit function, integration of some special functions.		3
E011062	Mathematics II	Z,ZK	8
•	bundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentiability.	•	`
, ,	ion given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral.		
	ndrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gr I line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vec		
Gauss-Ostrogradskij the		tor neid tillough a	d Surface. The
E011009	Mathematics III.	Z,ZK	5
An introductory course i	in ordinary differential equation and infinite series.	, ,	
E372083	Measurement in Engineering	KZ	3
	ciples for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	verification of me	easurement
instruments.	Machania	7 71/	4
E311101	Mechanics I.  systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replace	Z,ZK	4 of gonoral
•	The balance of the body in the plane - numerically. Body constraints in 3D. Replacement and general spatial equilibrium of a		· ·
· ·	- Multi Body Systems. Static determinancy and mobility, composition. Analytical solution of equilibrium for MBS systems. Trus	=	
Internal forces. The bala	ance of the body and of multibody systems with friction. Mechanical work. Power. Efficiency. Equilibrium position.		
E311102	Mechanics II.	Z,ZK	4
	of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion		
-	Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.	ector method. Gra	aphical methods
E181026	Momentum, Heat and Mass Transfer	Z,ZK	5
	ort phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanic	<i>'</i> !	
· ·	tinuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and		
systems. Mass transfer	by molecular diffusion, convection, with chemical reactions and interphase mass transfer.		
E011049	Numerical Mathematics	Z,ZK	4
E021041	Physics I.	Z,ZK	7
	cs of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic		
	. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Cold. Magnetic materials. Electromagnetic field. Laboratories - accuracy of measurements, systematic and random errors, uncer		
<del>-</del>	ion, measurements of 11 various experiments related to the lectures.	tainty or alloot an	a manoot
E021025	Physics II.	Z,ZK	4
	nagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of e	, , , , , , , , , , , , , , , , , , ,	
	Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom at		
	Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 ex	·	
E331068	Technology I.	Z,ZK	5
	etals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of f	orming processes	. Semi-products,
	d and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.	7 71/	F
E341014	Technology II.	Z,ZK	5

Code of the group: 12BTA\*P-ALFA

Name of the group: 02 2012 ALFA povinné pro TZI anglicky

programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.

Mechanics of chip formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining economics. Automation of processes,

Requirement credits in the group: In this group you have to gain 38 credits

Requirement courses in the group: In this group you have to complete 14 courses

Credits in the group: 38

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
E01A021	Constructive Geometry A Ivana Linkeová	ZK	3	3P+2C	*	Р
E01A056	Mathematics I.A	ZK	4	0P+0C	*	Р
E01A062	Mathematics II.A Stanislav Kra mar	ZK	4	0P+0C	*	Р
E01A009	Mathematics III.A Stanislav Kra mar	ZK	2	0P+0C	*	Р
E01A049	Numerical Mathematics A  Marta ertíková	ZK	2	0P+0C	*	Р
E02A041	Physics I.A	ZK	3	0P+0C	*	Р
E02A025	Physics II.A	ZK	2	0P+0C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BTA\*P-ALFA Name=02 2012 ALFA povinné pro TZI anglicky

E01A021	Constructive Geometry A	ZK	3
The subject is focused	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		1
E01A056	Mathematics I.A	ZK	4
In the course, greater	emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connec	tions between cor	ncepts. Students
will also get to know th	e procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic area	as: eigennumbers a	and eigenvectors
of a matrix, Taylor poly	nomial, integral as a limit function, integration of some special functions.		
E01A062	Mathematics II.A	ZK	4
Open and closed set,	boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differe	ential operators div	v (divergence)
and curl (rotation). Fur	ction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integ	ral, Fubini theorem	n. Transformation
of integrals to polar, c	/lindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gi	reen's theorem. A	potential vector
field, independence o	a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a ve	ctor field through	a surface. The
Gauss-Ostrogradskij t	heorem.		
E01A009	Mathematics III.A	ZK	2
An introductory cours	e in ordinary differential equation and infinite series.		
E01A049	Numerical Mathematics A	ZK	2
Numerical solution of	linear and non-linear systems. Basics of interpolation and approximation of functions, least squares method. Numerical solution	n of ordinary differ	ential equations
Solution od basic line	ar partial differential equations usinf finite differences method.		
E02A041	Physics I.A	ZK	3
Kinematics and dynar	nics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of bod	lies. Oscillations
waves. Fluid mechani	cs. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	inductors, semicor	nductors,
insulators. Magnetic fi	eld. Magnetic materials. Electromagnetic field. Laboratories - accuracy of measurements, systematic and random errors, unce	rtainty of direct ar	nd indirect
measurements, regre	ssion, measurements of 11 various experiments related to the lectures.		
E02A025	Physics II.A	ZK	2

Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures.

Code of the group: 12B\*A\*P-ZT12

Name of the group: 03 2012 anglicky ZT v po adí 12

Requirement credits in the group: In this group you have to gain 6 credits

Requirement courses in the group: In this group you have to complete 2 courses

Credits in the group: 6 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
E333038	Fundamentals of Technology I.	Z	3	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12B\*A\*P-ZT12 Name=03 2012 anglicky ZT v po adí 12

E333038	Fundamentals of Technology I.	<sub> </sub>	3
The study of manufactu	ring processes forms a core subject area for a majority of mechanical enginnering stdents. It contains basic concept of three	manufacturing to	echnologies such

The study of manufacturing processes forms a core subject area for a majority of mechanical enginnering stdents. It contains basic concept of three manufacturing technologies such as casting, forming and welding, including basic terms, methods and materials.

Code of the group: 12B\*A\*P-TV

Name of the group: 04 2012 bakalá ský povinný t locvik anglicky

Requirement credits in the group: In this group you have to gain 3 credits

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

Credits in the group: 3 Note on the group:

Code of the group: 12BTA5P-ME3

Name of the group: 07 2012 ME3 pro TZI anglicky

Requirement credits in the group: In this group you have to gain 7 credits

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

Credits in the group: 7 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
E311107	Mechanics III. Tomáš Vampola	Z,ZK	7	2P+3C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BTA5P-ME3 Name=07 2012 ME3 pro TZI anglicky

E311107 | Mechanics III. | Z,ZK | 7 | Modeling. Dynamics of systems of particles. Dynamics of body. Mass distribution in a body. Inertia tensor. D'Alembert principle. Inertial effects of motion. Balancing of rotating bodies. Free body diagram method. Newton-Euler equations. Dynamics of multibody systems. Vibrations of systems with 1 DOF. Free oscillations. Forced oscillations excited by harmonic

force and rotating unbalanced mass. Kinematic excitation. Oscillation of systems with two DOFs, torsional oscillation. Hertz theory of impact.

Code of the group: 12BTA6P-CMS2

Name of the group: 08 2012 CMS2 pro TZI anglicky

Requirement credits in the group: In this group you have to gain 7 credits

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

Credits in the group: 7 Note on the group:

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 8

The role of the block: PV

Code of the group: 12B\*A4Q-BZJ

Name of the group: 06 2012 bakalá ské zkoušky z jazyk anglicky

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:

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
2041061	English-Bachelor Exam Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice (Gar.)	Z,ZK	2	0P+2C	*	PV
2041066	Czech - Bachelor Exam Michaela Schusová, Jaroslava Kommová, Petr Laurich Jaroslava Kommová	ZK	2	0P+2C	*	PV
2041063	French - Bachelor Exam /FME Michaela Schusová, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041062	German - Bachelor Exam / FME Michaela Schusová, Jaroslava Kommová, Petr Laurich, Eliška Vítková Jaroslava Kommová (Gar.)	Z,ZK	2	0P+2C	*	PV
2041065	Russian - Bachelor Exam / FME Michaela Schusová, Hana Volejníková, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041064	Spanish - Bachelor Exam / FME Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z,ZK	2	0P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12B\*A4Q-BZJ Name=06 2012 bakalá ské zkoušky z jazyk anglicky

2041061	English-Bachelor Exam	Z,ZK	2
Mapped to the Commo	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take part	in discussions,
to write a summary, a	report and an essay, to read technical texts, to master grammar at advanced level.		
2041066	Czech - Bachelor Exam	ZK	2
Mapped to the Commo	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take part	in discussions,
to write a summary, a	report and an essay, to read technical texts, to master grammar at advanced level.		
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Commo	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take part	in discussions,
to write a summary, a	report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Commo	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take part	in discussions,
to write a summary, a	report and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Commo	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take part	in discussions,
to write a summary, a	report and an essay, to read technical texts, to master grammar at advanced level.		
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Commo	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take part	in discussions,
	report and an essay, to read technical texts, to master grammar at advanced level.		

Code of the group: 12BTA6Q-OP

Name of the group: 09 2012 BTZI 6. sem oborové projekty anglicky

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:

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
E012091	Project	KZ	2	0P+2C		PV
E322091	Project Jana Sobotová	KZ	2	0P+2C		PV
E332091	Project	KZ	2	0P+2C		PV
E372091	Project	KZ	2	0P+2C	*	PV
E152091	Project	KZ	2	0P+2C	*	PV
E182091	Project	KZ	2	0P+2C	*	PV
E362091	Project	KZ	2	0P+2C		PV

Characteristics of the courses of this group of Study Plan: Code=12BTA6Q-OP Name=09 2012 BTZI 6. sem oborové projekty anglicky

The second of the second of the group of state of the second of the seco					
E012091	Project	KZ	2		
E322091	Project	KZ	2		
E332091	Project	KZ	2		
E372091	Project	KZ	2		
An individual project	ct from the branch of specialization (instrumentation, control engineering, informatics), or individual work, related to another subject	ect.	•		
E152091	Project	KZ	2		
E182091	Project	KZ	2		
Absolvent se seznámí se základy oboru Procesní technika.					
E362091	Project	KZ	2		

Code of the group: 12BTA6Q-BP

Name of the group: 10 2012 BTZI 6. sem bakalá ské práce anglicky

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 quarantors (gar.)	Completion	Credits	Scope	Semester	Role
E373991	Bachelor Thesis	Z	4	0P+0C	*	PV
E113991	Thesis	Z	4	0P+0C	*	PV
E153991	Thesis	Z	4	0P+0C		PV

E323991	Thesis Jana Sobotová	Z	4	0P+0C	PV
E333991	Thesis	Z	4	0P+0C	PV
E363991	Thesis	Z	4	0P+0C	PV
E013991	Thesis	Z	4	0P+0C	PV
E183991	Thesis	Z	4	0P+0C	PV

Characteristics of the courses of this group of Study Plan: Code=12BTA6Q-BP Name=10 2012 BTZI 6. sem bakalá ské práce anglicky

E373991	Bachelor Thesis	Z	4	
Each student will so	Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her thesis.			
E113991	Thesis	Z	4	
Individual assignme	nt '		'	
E153991	Thesis	Z	4	
E323991	Thesis	Z	4	
E333991	Thesis	Z	4	
E363991	Thesis	Z	4	
E013991	Thesis	Z	4	
E183991	Thesis	Z	4	

Name of the block: Elective courses Minimal number of credits of the block: 0

The role of the block: V

Code of the group: 12B\*A\*V-DOP SEMI

Name of the group: 05 2012 doporu ené seminá e anglicky

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0 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
E026002	Physics I Seminary Zden k Kohout, Zuzana Budinská, Petr Duchá ek, Jan Novák, Miroslav Jílek, Daniel Tischler, Rudolf Sýkora Zden k Kohout (Gar.)	Z	2	0P+2C	*	V
E026003	Physics II Seminary Petr Duchá ek, Jan Novák, Rudolf Sýkora Petr Duchá ek	Z	2	0P+2C	*	V

Characteristics of the courses of this group of Study Plan: Code=12B\*A\*V-DOP SEMI Name=05 2012 doporu ené seminá e anglicky

E026002	Physics I Seminary	Z	2
Solving of problems cor	responding to the lectures of Physics I.		
1	Physics II Seminary	Z	2
l —			

The subject is intended for students who need more detailed practising and improvement (including knowledge from former physics courses, or high-school knowledge) necessary for successful finishing Physics II course. The instructions are analogical to seminars with a short corresponding theoretical background. The link between physical concepts and methods of solution of typical problems is underlying.

Code of the group: 12B\*A1V-DOP ZJK

Name of the group: 12 2012 doporu ené základní jazykové kurzy anglicky

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0 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
E046117	Czech - Advanced Jaroslava Kommová	Z	2	0+2	Z	V
E046125	Czech - Lower Intermediate  Jaroslava Kommová	Z	2	0+2	Z	V
E046128	Czech - Upper Intermediate Hana Volejníková, Petr Laurich Jaroslava Kommová	Z	2	0+2	L	V

E046118	Czech Advanced Hana Volejníková, Petr Laurich Jaroslava Kommová	Z	2	0+2	L	V
E046120	Czech for Beginners II.  Jaroslava Kommová	Z	2	0+2	*	V
E046119	Czech Language for Beginners I.  Jaroslava Kommová	Z	2	0+2	*	V
E046126	Czech Lower Intermediate Hana Volejníková, Petr Laurich Petr Laurich	Z	2	0+2	L	V
E046127	Czech Upper Intermediate  Jaroslava Kommová	Z	2	0+2	Z	V
E046078	German - Lower Intermediate Course  Jaroslava Kommová	Z	2	0+2	Z	V
E046079	German Lower Intermediate Michaela Schusová, Jaroslava Kommová, Petr Laurich, Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0+2	L	V
E046080	German Upper Intermediate Eliška Vítková	Z	2	0+2	Z	V
E046081	German Upper Intermediate Michaela Schusová, Jaroslava Kommová, Petr Laurich, Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0+2	L	V
E046082	German Advanced	Z	2	0+2	Z	V
E046083	German Advanced Jaroslava Kommová, Petr Laurich Jaroslava Kommová	Z	2	0+2	L	V
E046076	Jaroslava Kommová	Z	2	0+2	Z	V
E046077	German Beginners Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0+2	L	V

Characteristics of the courses of this group of Study Plan: Code=12B\*A1V-DOP ZJK Name=12 2012 doporu ené základní jazykové kurzy anglicky

E046117	Czech - Advanced	Z	2
Comprehension of sp	oken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation	in discussions. Expre	essing opinions
Written skills. Ability t	o write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technica	l articles.	
E046125	Czech - Lower Intermediate	Z	2
Aim: Understanding o	learly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about I	them. Writing in a sim	ple way about
amiliar topics. Readi	g and comprehension of simple texts. Improvement of professional language.		
E046128	Czech - Upper Intermediate	Z	2
Mapped to the Comm	on European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration profession	nal Czech and comm	on professiona
erminology. Comprel	ension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on in	termediate level. Broa	adening the
nowledge technical	anguage.		
046118	Czech Advanced	Z	2
apped to the level of	f Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in	n Czech without grea	t difficulties an
ctive participation in	a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compreh	ension of popular-sci	entific and
cientific articles or te	xts from student's field of studies without difficulties. Grammar structures on advanced level.		
046120	Czech for Beginners II.	Z	2
Napped to the Comm	on European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Underst	anding and use of ba	sic expression
f general scientific to	rminology (professional language).		
046119	Czech Language for Beginners I.	Z	2
asic vocabulary of e	veryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (prof	fessional language)	
046126	Czech Lower Intermediate	Z	2
Mapped to the level of	f Common European Framework of Reference A2 Aim: Understanding clearly what is spoken about everyday situations which	ch a student meets a	t school or in
	speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvemen		
E046127	Czech Upper Intermediate	Z	2
	ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Al	bility to describe expe	
ŭ	one's opinions and plans. Reading and understanding general and technical texts.	,	
046078	German - Lower Intermediate Course	Z	2
	learly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about t	them. Writing in a sim	ple way about
amiliar topics. Readi	g and comprehension of simple texts. Improvement of professional language.	· ·	
046079	German Lower Intermediate	Z	2
	f Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations w	hich a student meets	either at school
• •	and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improver		
046080	German Upper Intermediate	7	2
	ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Al	bility to describe expe	<del>-</del>
•	one's opinions and plans.	, , , .	
E046081	German Upper Intermediate	7	2
	f Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students		_
	talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and under		
046082	German Advanced	Z	2
	oken language as well as lectures in German on topics familiar to the student. Communication with native speakers, particip		<del>-</del>
	s. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and		p. 550mig
046083	German Advanced	7	2
	German Advanced f Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures giver		_
langed to the level of			
	in in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and com	-	-

E046076		Z	2
E046077	German Beginners	Z	2

Mapped to the Common European Framework of Reference level A1. Basic vocabulary of everyday lifein a written and spoken form. understanding and use of basic expressions of general scientific terminology.

## List of courses of this pass:

ode	Name of the course	Completion	Credit
2041061	English-Bachelor Exam	Z,ZK	2
lapped to the Com	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	ties, to take part in	discussion
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
lapped to the Com	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	ties, to take part in	discussion
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
2041063	French - Bachelor Exam /FME	Z,ZK	2
lapped to the Com	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	ties, to take part in	discussion
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
	ı nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	ties, to take part in	discussio
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
lapped to the Com	ı nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul		ı discussioı
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	,	
2041066	Czech - Bachelor Exam	ZK	2
	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	1	1
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	, F	
E011009	Mathematics III.	Z,ZK	5
2011000	An introductory course in ordinary differential equation and infinite series.	_,_,	, ,
E011021	Constructive Geometry	Z,ZK	6
L011021	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation		1 0
E011040			1
E011049	Numerical Mathematics	Z,ZK	4
E011056	Mathematics I.	Z,ZK	8
n the course, area			
_	tter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection	-	
_	v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e	-	
E011062 Open and closed nd curl (rotation). F	with procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,	Z,ZK ial operators div (o	eigenvecto  8 divergence
E011062 Open and closed nd curl (rotation). Fe fintegrals to pola	whe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector	Z,ZK ial operators div (c Fubini theorem. Tra	8 divergence ansformation
E011062 Open and closed nd curl (rotation). Fi fintegrals to pola field, independent	whe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	Z,ZK ial operators div (of Fubini theorem. Tran's theorem. A potential of the potential of the control of the c	8 divergence ansformati ential vecturface. Th
E011062 Open and closed nd curl (rotation). Fi integrals to pola field, independent	whe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: en of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Algorithmization and Programming	Z,ZK ial operators div (of Fubini theorem. Tran's theorem. A potror field through a s	8 divergence ansformati ential vecturface. Th
E011062 Open and closed nd curl (rotation). For integrals to pola field, independent E012035 Programming in I	whe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: en of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Algorithmization and Programming  MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matr	Z,ZK ial operators div (of Fubini theorem. Tran's theorem. A potror field through a services, vectors and of the control of th	8 divergence ansformati ential vecturface. The
E011062 Open and closed nd curl (rotation). For integrals to pola field, independent E012035 Programming in Intritting M-script. In	whe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Algorithmization and Programming  MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrix operations. Systems	Z,ZK ial operators div (of Fubini theorem. Tra n's theorem. A poto or field through a s  KZ ices, vectors and of ms of linear equat	8 divergence ansformati ential vecturface. Th  4 operations ions. Scriptions.
E011062 Open and closed nd curl (rotation). For integrals to pola field, independent E012035 Programming in Integral functions. Stream of the	whe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: en of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Algorithmization and Programming  MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matriput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systet tructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. St	Z,ZK ial operators div (of Fubini theorem. Tran's theorem. A potential of theorem is theorem. KZ ices, vectors and of the of theorem is of linear equat ructures. Algorithm	8 divergence ansformatiential vecturface. Th 4 pperations ions. Scripnization of
E011062 Open and closed nd curl (rotation). For integrals to pola field, independent E012035 Programming in Intring M-script. Ir and functions. Stample programs	whe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: en of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Algorithmization and Programming  MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrinoput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systet tructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Sties. In minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of significant commands.	Z,ZK ial operators div (of Fubini theorem. Transition of field through a second control of the c	8 divergence ansformatiential vecturface. Th 4 pperations. Scripnization of equations.
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E011062 Open and closed and curl (rotation). If integrals to polar field, independent and functions. Strain of functions. Strain of functions. Strain of functions. Strain of functions of functions of functions. Strain o	with procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  Mathematics II  set, boundary in EAk. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Algorithmization and Programming  MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matr nput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. System tructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Sts. minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of some method, matrix operations. Direct methods for solution of some method and their visualisation. The Rhinoceros - NURBS reported to demonstrate the geometrical properties of the curves and surfaces.  Project  Thesis  Mathematics III.A  An introductory course in ordinary differential equation and infinite series.  Constructive Geometry A  The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations in the space - curves, surfaces and solids and their properties and mutual relations of linear and non-linear systems. Basics of interpolation and approximation of functions, lea	Z,ZK ial operators div (of Fubini theorem. Tra n's theorem. A pote or field through a s  KZ ices, vectors and of ms of linear equat ructures. Algorithm systems of linear e KZ nodelling for Windo  KZ ZK  ZK  ZK  Drs.  ZK  s between conceptigennumbers and of	8 divergence ansformation to a quations. Scriphization of a quations and a sequence and a sequence ansformation of a quations. Scriphization of a quations and a sequence ansformation and a sequence ansformation and a sequence and a

field, independence	e of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	r field through a su	urface. The
E021025	Physics II.	Z,ZK	4
	ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec	· '	
of radiation with m	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	periodic system of	elements.
	ter. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of 6 experiments.		
E021041	Physics I.	Z,ZK	7
-	amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro chanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	-	
	etic field. Magnetic materials. Electromagnetic field. Laboratories - accuracy of measurements, systematic and random errors, uncer		
F000000	measurements, regression, measurements of 11 various experiments related to the lectures.	7	
E026002	Physics I Seminary Solving of problems corresponding to the lectures of Physics I.	Z	2
E026003	Physics II Seminary	Z	2
	ded for students who need more detailed practising and improvement (including knowledge from former physics courses, or high-sct		
	Physics II course.The instructions are analogical to seminars with a short corresponding theoretical background. The link between p		-
	of solution of typical problems is underlying.		
E02A025	Physics II.A	ZK	2
-	ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec	-	
	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and		
	er. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experience.		
E02A041 Kinematics and dvn	Physics I.A amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	ZK	3 Oscillations
-	chanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	-	
	etic field. Magnetic materials. Electromagnetic field. Laboratories - accuracy of measurements, systematic and random errors, uncer		
	measurements, regression, measurements of 11 various experiments related to the lectures.		
E046076		Z	2
E046077	German Beginners	Z	2
Mapped to the Co	mmon European Framework of Reference level A1. Basic vocabulary of everyday lifein a written and spoken form. understanding and	d use of basic expr	ressions of
E040070	general scientific terminology.	7	0
E046078	German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Z Writing in a simple	2
Aim. Onderstanding	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	writing in a simple	way about
E046079	German Lower Intermediate	Z	2
1	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	student meets eith	
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	nt of professional la	anguage.
E046080	German Upper Intermediate	Z	2
Understanding sta	ndard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe expero	ences and
E040004	events, briefly explain one's opinions and plans.	Z	
E046081	German Upper Intermediate el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com		2
• • •	d talking about these topics. Ability to describe experiences and events, explain one s opinions and plans. Reading and understanding		
E046082	German Advanced	Z	2
	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	n in discussions. E	xpressing
opinions. V	Vritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical article	es.
E046083	German Advanced	Z	2
* *	l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in G6	_	
and active participa	tion in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compreher scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	nsion of popular-so	cientific and
E046117	Czech - Advanced	Z	2
	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in disc		
-	n skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to		
E046118	Czech Advanced	Z	2
	of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech	_	
active participation	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens	ion of popular-scie	ntific and
E040440	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
E046119	Czech Language for Beginners I. bulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	Z rofessional langua	2
E046120	Czech for Beginners II.	Z	2
	mon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	_	
	of general scientific terminology (professional language).	,	
E046125	Czech - Lower Intermediate	Z	2
Aim: Understanding	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.		
E046126	Czech Lower Intermediate	Z	2
	el of Common European Framework of Reference A2 Aim: Understanding clearly what is spoken about everyday situations which a e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
E046127	Czech Upper Intermediate	Z	guage.
1	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	_	
3 5.5	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	- 1	-

E046128			
	Czech - Upper Intermediate	Z	2
	· mmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz		
terminology. Con	nprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	ediate level. Broad	lening the
	knowledge technical language.		
E113991	Thesis	Z	4
	Individual assignment	'	'
E131002	Engineering Design II	Z,ZK	4
	nentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancin	'	
	nsional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and pr		
	lectures.		
E131512	Machine Elements and Mechanisms I.	Z,ZK	6
	elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke	'	
	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded		
1 .	nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assen	-	
1.	rk. Supporting systemes, mechanical joints, material joints, joining elements, mechanical transmissions, dimensioning, loading capac	=	
E133013	Engineering Design III.	Z	2
E133014		7	2
	Engineering Design IV.	_	
Information about g	general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is		ous product
E 4 4 4 5 0 4	including. Designing of a dribling jig. A drilling jig is a device by means of which holes on many duplicate parts may be drilled exact	_	
E141504	Electrical Circuits and Electronics	Z,ZK	4
	eory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of en		
	er transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle a	,, ,	
semiconductor co	omponents. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principles of the control of th	ncipie of analogue	and digital
E444505	signal processing. Logical circuits, converters, microprocessor.	7.71	
E141505	Electrical Machines and Drives	Z,ZK	4
	ectrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transf		
	mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-	•	
control. Synchrono	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character	istic. Low-voltage i	nstruments.
	Low-voltage distribution system.		_
E152091	Project	KZ	2
E153005	Fundamentals of Energy Conversions	Z	1
	larify the reasons, procedures and consequences of energy conversions from sources to applications. 1. Introduction. Energy, forms a		
	y sources to cover world energy consumption. World reserves, advances and depletion of primary energy sources. Situation on the W		
	nd properties. Secondary fuels. Combustion of fossil fuels. Combustion equipment and their efficiency. Ecological consequences of c		
1	ırnot's comparison cycle. Thermal efficiency. 4. Rankine steam cycle, thermal and real efficiency. Steam circulation carnotization. Surve	•	· · ·
1 ' ' '	Internal heat transfer, carnotization. thermal and real efficiency. Combine cycle power plant. 6. Cooling cycles, heat pumps, organic R	lankine cycles. Typ	es working l
			- 1
fluid, efficiency x (	CoF. 7. Engines with internal combustion (Otto, Diesel, Atkinson, Miller, etc), Stirling cycle, Family of Kalina cycles. 8. Renewable sour		- 1
	problems). Direct transformation (heat->Electr.). Special applications.	rces, application, ir	mportance,
E153991	problems). Direct transformation (heat->Electr.). Special applications.  Thesis	rces, application, ir	mportance,
E153991 E181026	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer	z Z Z,ZK	mportance,  4 5
E153991 E181026	problems). Direct transformation (heat->Electr.). Special applications.  Thesis	z Z Z,ZK	mportance,  4 5
E153991 E181026 Fundamentals of	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their	Z Z,ZK energy equation.	4 5 Residence
E153991 E181026 Fundamentals of time distributions in	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	Z Z,ZK l energy equation. mult	4 5 Residence
E153991 E181026 Fundamentals of	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their	Z Z,ZK energy equation.	4 5 Residence
E153991 E181026 Fundamentals of time distributions in	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	Z Z,ZK l energy equation. rmal radiation. Mult	4 5 Residence cicomponent
E153991 E181026 Fundamentals of time distributions in E182019 General chemistr	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical of continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry by from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties in, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochem	Z Z,ZK I energy equation. rmal radiation. Mult	4 5 Residence icomponent 3 dynamics,
E153991 E181026 Fundamentals of time distributions in E182019 General chemistri phase equilibrium	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties not, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochem oriented upon the material properties measurement.	Z Z,ZK l energy equation. rmal radiation. Mult KZ s of matter, thermo	4 5 Residence ricomponent 3 dynamics, practice is
E153991 E181026 Fundamentals of time distributions in E182019 General chemistr	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical of continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry by from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties in, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochem	Z Z,ZK I energy equation. rmal radiation. Mult	4 5 Residence icomponent 3 dynamics,
E153991 E181026 Fundamentals of time distributions in E182019 General chemistri phase equilibrium	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties not, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochem oriented upon the material properties measurement.	Z Z,ZK l energy equation. rmal radiation. Mult KZ s of matter, thermo	4 5 Residence ricomponent 3 dynamics, practice is
E153991 E181026 Fundamentals of time distributions in E182019 General chemistri phase equilibrium	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and there systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties not, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemical reactions.  Project	Z Z,ZK l energy equation. rmal radiation. Mult KZ s of matter, thermo	4 5 Residence ricomponent 3 dynamics, practice is
E153991 E181026 Fundamentals of time distributions in E182019 General chemistr phase equilibrium E182091	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry  ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties not included upon the material properties measurement.  Project  Absolvent se seznámí se základy oboru Procesní technika.	Z Z,ZK energy equation. rmal radiation. Mult KZ of matter, thermo mistry. Laboratory	4 5 Residence icomponent 3 dynamics, practice is
E153991 E181026 Fundamentals of time distributions in E182019 General chemistr phase equilibrium E182091 E183991 E311101	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties in, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemical continuous systems.  Project Absolvent se seznámí se základy oboru Procesní technika.  Thesis	Z Z,ZK l energy equation. rmal radiation. Multi KZ s of matter, thermo mistry. Laboratory KZ Z,ZK	A 5 Residence icomponent 3 dynamics, practice is 2 4 4
E153991 E181026 Fundamentals of time distributions in E182019 General chemistr phase equilibrium E182091 E183991 E311101 Modeling of med	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry  ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties in, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher oriented upon the material properties measurement.  Project  Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Mechanics I.	Z Z,ZK lenergy equation. rmal radiation. Multi KZ s of matter, thermomistry. Laboratory KZ Z,ZK ment and balance	A S Residence icomponent    3 dynamics, practice is   2   4 of general
E153991 E181026 Fundamentals of time distributions in E182019 General chemistr phase equilibrium E182091 E183991 E311101 Modeling of mec planar system of	problems). Direct transformation (heat->Electr.). Special applications.  Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and there systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties not the point of view of mechanical and process engineering 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemical upon the material properties measurement.  Project Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Mechanics I.  hanical systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replaced	Z Z,ZK l energy equation. rmal radiation. Multi KZ s of matter, thermo mistry. Laboratory KZ Z,ZK ment and balance system of forces. The	A S Residence icomponent    3 dynamics, practice is   2   4 of general ne balance
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E153991 E181026 Fundamentals of time distributions in E182019 General chemistriphase equilibrium E182091 E183991 E311101 Modeling of meciplanar system of of the body in 30 E311102 Kinematics of point general spatial mote	Thesis  Momentum, Heat and Mass Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical to continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and their systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  Chemistry by from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties, n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher oriented upon the material properties measurement.  Project Absolvent se seznámi se základy oboru Procesní technika.  Thesis  Mechanics I.  hanical systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replace forces. The balance of the body in the plane - numerically. Body constraints in 3D. Replacement and general spatial equilibrium of a resolution.  MBS - Multi Body Systems. Static determinancy and mobility, composition. Analytical solution of equilibrium for MBS systems. Tris.  Internal forces. The balance of the body and of multibody systems with friction. Mechanical work. Power. Efficiency. Equilibrium programs of the pody and of multibody systems with friction. Mechanical more programs. Programs and programs are applied to the programs. Analytical methods in kinematics of mechanisms. Prigonometric and vect in kinematics. Basic theory of gearing. Transmittion mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanics III.  so of systems of particles. Dynamics of body. Mass distribution in a body. Inertia tensor. D'Alembert principle. Inertial effects of motion im method. Newton-Euler equations. Dynamics of multibody systems. Vibrations of systems with 1 DOF. Free oscillations. Forced osc force and rotating unbalanced mass. Kinematic excitation	Z Z,ZK energy equation. Immal radiation. Multi KZ s of matter, thermo mistry. Laboratory KZ Z,ZK ment and balance system of forces. The systems. Center cosition. Z,ZK pherical motion, so for method. Graphinisms. Z,ZK all Balancing of rota dillations excited by of impact. Z,ZK nermo-mechanical als. KZ mation, recrystalliz	A gracine mportance,  4 5 Residence icomponent  3 dynamics, practice is  2 4 4 of general ne balance of gravity.  4 crew motion, cal methods  7 ting bodies. harmonic  4 processing,  3 gration and

	Technology I.	Z,ZK	5
Foundry properties	of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of form	0.1	mi-products,
	heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatment		
E332091	Project	KZ	2
E333038	Fundamentals of Technology I.	Z	3
The study of manuf	acturing processes forms a core subject area for a majority of mechanical enginnering stdents. It contains basic concept of three ma	inufacturing techno	ologies such
	as casting, forming and welding, including basic terms, methods and materials.		
E333991	Thesis	Z	4
E341014	Technology II.	Z,ZK	5
Mechanics of chip for	ormation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor	mics. Automation c	of processes,
	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.		
E362091	Project	KZ	2
E363991	Thesis	Z	4
E371047	Automatic Control	Z,ZK	5
Automatic controll	ers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automat	ic control theory a	nd practice
like transfer function	is, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentra	tes on logic contro	and control
via programmabl	e logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained.	Students begin to	work with
	MATLAB software as a common platform of control engineers (MATLAB is used on all including most of the laboratory classe		
E372041	1 0 1	es).	
2012011	Computer Support for Study	es). KZ	3
		KZ	_
The course introduc	Computer Support for Study	KZ he use of compute	ers. Students
The course introduc	Computer Support for Study ses students into creating technical and professional documents on computers or Web and into realizing technical computations with t	KZ he use of compute	ers. Students
The course introduce gain practic E372083	Computer Support for Study ses students into creating technical and professional documents on computers or Web and into realizing technical computations with tall skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional structures.	KZ he use of compute presenting a web p	ers. Students page.
The course introduce gain practic E372083	Computer Support for Study ses students into creating technical and professional documents on computers or Web and into realizing technical computations with tall skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional measurement in Engineering	KZ he use of compute presenting a web p	ers. Students page.
The course introduce gain practic E372083	Computer Support for Study ses students into creating technical and professional documents on computers or Web and into realizing technical computations with to all skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional measurement in Engineering sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	KZ he use of compute presenting a web p	ers. Students page.
The course introduction gain practice E372083 Overview of sense E372091	Computer Support for Study ses students into creating technical and professional documents on computers or Web and into realizing technical computations with to all skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional Measurement in Engineering sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.	KZ he use of compute presenting a web p KZ verification of mea	ers. Students page.  3 asurement
The course introduction gain practice E372083 Overview of sense E372091	Computer Support for Study ses students into creating technical and professional documents on computers or Web and into realizing technical computations with total skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional measurement in Engineering stor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.  Project	KZ he use of compute presenting a web p KZ verification of mea	ers. Students page.  3 asurement
The course introduction gain practice E372083 Overview of sense E372091 An	Computer Support for Study  ces students into creating technical and professional documents on computers or Web and into realizing technical computations with to all skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and public measurement in Engineering and public for principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.  Project  Individual project from the branch of specialization (instrumentation, control engineering, informatics), or individual work, related to a	KZ he use of compute presenting a web p KZ verification of mea	asurement 2
The course introduction gain practice E372083 Overview of sense E372091 An	Computer Support for Study  ces students into creating technical and professional documents on computers or Web and into realizing technical computations with to all skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional management in Engineering and professional management of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.  Project  Individual project from the branch of specialization (instrumentation, control engineering, informatics), or individual work, related to a Bachelor Thesis	KZ he use of compute presenting a web p KZ verification of mea	asurement 2
The course introduction gain practice E372083 Overview of sense E372091 And E373991 E381054	Computer Support for Study  ces students into creating technical and professional documents on computers or Web and into realizing technical computations with a skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional document in Engineering for principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.  Project  Individual project from the branch of specialization (instrumentation, control engineering, informatics), or individual work, related to a Bachelor Thesis  Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her to the student will solve his individual theme under guiding of his individual supervising department specialist.	KZ he use of compute presenting a web p KZ verification of mea KZ nother subject. Z hesis. Z,ZK	ers. Students page.  3 assurement  2  4
The course introduction gain practice E372083 Overview of sense E372091 And E373991 E381054 The study subject is	Computer Support for Study  ces students into creating technical and professional documents on computers or Web and into realizing technical computations with a skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and public measurement in Engineering for principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.  Project  Individual project from the branch of specialization (instrumentation, control engineering, informatics), or individual work, related to a Bachelor Thesis  Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her to Management and Economics of the Enterprise	KZ he use of compute presenting a web presenting to a web presenting the second presenting the s	rs. Students page.  3 assurement  2  4  4 ant technically
The course introduction gain practice E372083 Overview of sense E372091 An E373991 E381054 The study subject is educated foreign st	Computer Support for Study  ces students into creating technical and professional documents on computers or Web and into realizing technical computations with a skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and public measurement in Engineering for principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.  Project Individual project from the branch of specialization (instrumentation, control engineering, informatics), or individual work, related to a Bachelor Thesis  Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her to Management and Economics of the Enterprise  sintended for a wide range of students from all over the world who have successfully studied it for many previous years. The teaching	KZ he use of compute presenting a web processor of the pr	asurement  2  4  4  ttechnicallying concerns
The course introduction gain practice E372083 Overview of sense E372091 An E373991 E381054 The study subject is educated foreign study the areas of	Computer Support for Study  ces students into creating technical and professional documents on computers or Web and into realizing technical computations with a skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating and professional documents in Engineering  for principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and instruments.  Project  Individual project from the branch of specialization (instrumentation, control engineering, informatics), or individual work, related to a Bachelor Thesis  Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her to Management and Economics of the Enterprise  Intended for a wide range of students from all over the world who have successfully studied it for many previous years. The teaching udents with the basic procedures, methodologies and practice of management and economics of a modern, especially engineering co	KZ he use of compute presenting a web processor of the pr	asurement  2  4  4  ttechnically ing concerns of Lean Six

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