## 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: Theoretical Fundamentals of Mechanical Engineering

Type of study: Bachelor 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 Vladimír Hlavá Vladimír Hlavá (Gar.)	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 Martin Novák Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
E132001	Engineering Design I.	KZ	2	1P+2C	1	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
E121500	Fluid Dynamics	Z,ZK	5	3P+2C	*	Р
E153005	Fundamentals of Energy Conversions Lukáš Pila , Tomáš Dlouhý, Michal Kolovratník, Ond ej Bartoš, Pavel Zácha, Jan Hrdli ka, Pavel Skopec <b>Ond ej Bartoš</b> Tomáš Dlouhý (Gar.)	Z	1	1P+1C	*	Р
E131005	History of Technology František Lopot	ZK	3	2P+0C	Z	Р
E131512	Machine Elements and Mechanisms I. František Lopot, Daniel Hadraba František Lopot František Lopot (Gar.)	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. Veronika Mazá ová, Jana Sobotová, Jakub Horník Jana Sobotová Jana Sobotová (Gar.)	KZ	3	2P+0C+1L	L	Р
E321039	Materials Science II.  Jana Sobotová, Jakub Horník Jana Sobotová 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 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, Michael Valášek Michael Valášek (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, Michael Valášek Michael Valášek (Gar.)	Z,ZK	4	2P+2C	*	Р
E181026	Momentum, Heat and Mass Transfer Martin Dostál, Vojt ch B Iohlav	Z,ZK	5	3P+1C	*	Р
E011049	Numerical Mathematics Marta ertíková, David Trdli ka Marta ertíková	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
E341014	Technology II.	Z,ZK	5	2P+2L	*	Р
E121023	Thermomechanics	Z,ZK	5	3P+2C	*	Р
Characteristics of oro i od 1 do 6	the courses of this group of Study Plan: Code=12B-KMENA TZI S	TR Name=01	2012 s	ouhrn sku	pin 12B* <i>l</i>	AiP-KMEN
E012035 Programming in MATLA Writting M-script. Input a and functions. Structure	Algorithmization and Programming  B and its programming language. MATLAB command line. Elementary commands, variable and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical of program. Variables, expressions, assignment, and input / output commands. switch. For turn, mean, norm, numerical integration, bisection method, Newton method, matrix operation.	commands. Mat	rix operati d files. Poi	on. Matrices, ve ons. Systems on onters. Structure	of linear equals. S. Algorithm	ations. Scripts ization of
E371047 Automatic controllers ar	Automatic Control e important part of many industrial processes. The goal of this course is to introduce studen	nts into basic kno	owledge of		ZK trol theory a	5 nd practice

E012035	Algorithmization and Programming	KZ	4
	AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Ma	1	•
	t and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. S		•
	re of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers.	•	
	mum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution o	•	
E371047	Automatic Control	Z,ZK	5
	ure important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of autor	natic control theor	y and practice
like transfer functions,	open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also conce	entrates on logic co	ntrol and contro
via programmable log	ic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are traine	d. 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	KZ	3
General chemistry fro	m the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and propert	ies of matter, therr	nodynamics,
phase equilibrium, che	emical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocl	hemistry. Laborato	ry practice is
oriented upon the mat	erial 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 - NURE	S modelling for W	indows is used
•	ometrical properties of the curves and surfaces.	3	
E372041	Computer Support for Study	KZ	3
The course introduces	s students into creating technical and professional documents on computers or Web and into realizing technical computations v	vith the use of com	puters. Students
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	e.
E044004	Constructive Constructive	1	
E011021	Constructive Geometry	Z,ZK	6
-	Constructive Geometry  I on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.	Z,ZK	6
-		Z,ZK	6
The subject is focused E141504	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.	Z,ZK	4
The subject is focused E141504 Introduction into theor	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  Electrical Circuits and Electronics	Z,ZK of energy. Using Sy	4 mbolic-Complex
The subject is focused E141504 Introduction into theor method and Fourier tra	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	Z,ZK of energy. Using Sy ple and typical par	4 mbolic-Complex ameters of basic
The subject is focused E141504 Introduction into theor method and Fourier to semiconductor compo	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators cansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Princip	Z,ZK of energy. Using Sy ple and typical par	4 mbolic-Complex ameters of basic
The subject is focused E141504 Introduction into theor method and Fourier to semiconductor compo	d on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  Electrical Circuits and Electronics  y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle onents. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits.	Z,ZK of energy. Using Sy ple and typical par	4 mbolic-Complex ameters of basic
The subject is focused E141504 Introduction into theor method and Fourier trasemiconductor composignal processing. Log E141505	d on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  Electrical Circuits and Electronics  y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principenents. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. gical circuits, converters, microprocessor.	Z,ZK  of energy. Using Sy ple and typical par Principle of analog	4 mbolic-Complex ameters of basic jue and digital
The subject is focused E141504 Introduction into theor method and Fourier to semiconductor composignal processing. Log E141505 AC el. curcuits. Electri	d on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  Electrical Circuits and Electronics  y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of analysis and analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle of the properties and mutual relations.  In the properties and mutual relations.  Electrical Circuits and Electronics and Electronics and Electronics and Electronics and Electronics and Electronics. Principles and Electronics and Ele	Z,ZK of energy. Using Sy ple and typical par Principle of analog  Z,ZK ansformer, principle	4 mbolic-Complex ameters of basic que and digital  4 e, construction,
The subject is focused E141504 Introduction into theor method and Fourier to semiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, o	In on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.  Electrical Circuits and Electronics  y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principments. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Tra	Z,ZK  of energy. Using Sy ple and typical pare Principle of analog  Z,ZK  ansformer, principle d-torque characte	4 mbolic-Compley ameters of basic que and digital  4 e, construction, ristic, speed
The subject is focused E141504 Introduction into theor method and Fourier trasemiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, control. Synchronous	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters.	Z,ZK  of energy. Using Sy ple and typical pare Principle of analog  Z,ZK  ansformer, principle d-torque characte	4 mbolic-Compley ameters of basic que and digital  4 e, construction, ristic, speed
The subject is focused E141504 Introduction into theor method and Fourier transmit semiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, a control. Synchronous Low-voltage distribution.	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters.	Z,ZK  of energy. Using Sy ple and typical pare Principle of analog  Z,ZK  ansformer, principle d-torque characte	4 mbolic-Compley ameters of basic que and digital  4 e, construction, ristic, speed
The subject is focused E141504 Introduction into theor method and Fourier transmit semiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, a control. Synchronous Low-voltage distribution E132001	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters and principles.	Z,ZK of energy. Using Sy ple and typical par. Principle of analog Z,ZK ansformer, principle d-torque characte acteristic. Low-volta	4 mbolic-Compley ameters of basic jue and digital  4 e, construction, ristic, speed age instruments
The subject is focused E141504 Introduction into theor method and Fourier transmit semiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, a control. Synchronous Low-voltage distribution E132001 The course is focused	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Traceperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters and principle in the	Z,ZK of energy. Using Sy ple and typical par. Principle of analog Z,ZK ansformer, principle d-torque characte acteristic. Low-volta	4 mbolic-Complex ameters of basic que and digital  4 e, construction, ristic, speed age instruments
The subject is focused E141504 Introduction into theor method and Fourier transmit semiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, control. Synchronous Low-voltage distribution E132001 The course is focused train and improve their	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Traceperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters and principles.  Engineering Design I.  In on building up the ability of future designers to express their ideas through common communication language - technical dra	Z,ZK of energy. Using Sy ple and typical par. Principle of analog Z,ZK ansformer, principle d-torque characte acteristic. Low-volta	4 mbolic-Complex ameters of basic que and digital  4 e, construction, ristic, speed age instruments
The subject is focused E141504 Introduction into theor method and Fourier transemiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, control. Synchronous Low-voltage distribution E132001 The course is focused train and improve their E131002	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters are stated in special properations.  Engineering Design I.  In on building up the ability of future designers to express their ideas through common communication language - technical drains skills in spatial imagination and engineering way of thinking.	Z,ZK of energy. Using Sypple and typical para Principle of analog  Z,ZK cansformer, principle d-torque characte acteristic. Low-volta  KZ wing. During the co	4 mbolic-Complete ameters of basispue and digital 4 e, construction, ristic, speed age instruments 2 ourse students 4
The subject is focused E141504 Introduction into theor method and Fourier transemiconductor composignal processing. Log E141505 AC el. curcuits. Electri 3-phase transformer, control. Synchronous Low-voltage distribution E132001 The course is focused train and improve their E131002 Theoretical fundamen	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters and principle in the ability of future designers to express their ideas through common communication language - technical drams rekills in spatial imagination and engineering way of thinking.  Engineering Design II  Engineering Design II	Z,ZK of energy. Using Sypple and typical para Principle of analog  Z,ZK cansformer, principle d-torque characte acteristic. Low-volta  KZ wing. During the co	4 mbolic-Complex ameters of basic que and digital  4 e, construction, ristic, speed age instruments  2 ourse students  4 ure, geometrica
The subject is focused E141504 Introduction into theor method and Fourier transmit semiconductor composignal processing. Log E141505 AC el. curcuits. Electria-phase transformer, control. Synchronous Low-voltage distribution E132001 The course is focused train and improve their E131002 Theoretical fundamen	Electrical Circuits and Electronics y of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of ansformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principlements. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. pical circuits, converters, microprocessor.  Electrical Machines and Drives cal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transperating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characters are still in a patial imagination and engineering way of thinking.  Engineering Design II tals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, toleral	Z,ZK of energy. Using Sypple and typical para Principle of analog  Z,ZK cansformer, principle d-torque characte acteristic. Low-volta  KZ wing. During the co	4 mbolic-Compley ameters of basic jue and digital  4 e, construction, ristic, speed age instruments  2 ourse students  4 ure, geometrica

E133014			
	Engineering Design IV.	Z	2
<del>-</del>	al principles of a new technical product design, stages of development of a new product, the designer fundamental assignment	it is to propose a ri	valrous product
	dribling jig. A drilling jig is a device by means of which holes on many duplicate parts may be drilled exactly alike.	7.71/	F
E121500 The first course in Fluid	Fluid Dynamics  Mechanics designed to provide the fundamental tools necessary to analyse a fluid systems and predict its behaviour.	Z,ZK	5
E153005	Fundamentals of Energy Conversions	Z	1
	the reasons, procedures and consequences of energy conversions from sources to applications. 1. Introduction. Energy, form	- 1	tions of energy.
Structure of primary sou	rces to cover world energy consumption. World reserves, advances and depletion of primary energy sources. Situation on the	e World, EU and C	zechia 2. Fossil
	perties. Secondary fuels. Combustion of fossil fuels. Combustion equipment and their efficiency. Ecological consequences of		
	comparison cycle. Thermal efficiency. 4. Rankine steam cycle, thermal and real efficiency. Steam circulation carnotization. Su al heat transfer, carnotization. thermal and real efficiency. Combine cycle power plant. 6. Cooling cycles, heat pumps, organic	-	- 1
	Engines with internal combustion (Otto, Diesel, Atkinson, Miller, etc), Stirling cycle, Family of Kalina cycles. 8. Renewable		
	rmation (heat->Electr.). Special applications.		
E131005	History of Technology	ZK	3
•	knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is	-	
	attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the r		
E131512	Machine Elements and Mechanisms I.  Ints (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters	Z,ZK kevs) Mechanica	6 al transmissions
, ,	dives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloade		
pressed, splined and ke	joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple ass	sembly units is also	o indispensable
seminar work.			
E381054	Management and Economics of the Enterprise	Z,ZK	4
	nded for a wide range of students from all over the world who have successfully studied it for many previous years. The teach is with the basic procedures, methodologies and practice of management and economics of a modern, especially engineering		-
ū	s, with the basic procedures, methodologies and practice of management and economics of a modern, especially engineering and management and operational-production management and economics. The focus is on a prosperous enterprise operating with		ŭ
	In addition to lectures and exercises, students also learn to be independent in their individual presentations, dedicated to the		
advanced business mar	agement.		
E322029	Materials Science I.	KZ	3
	e of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defo	-	
	ucture and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, irc		
	Materials Science II.	Z,ZK	cal processing
	bys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.	a tricimo mechani	cai processing,
E011056	Mathematics I.	Z,ZK	8
In the course, greater er	nphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connect		cepts. Students
	procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas	s: eigennumbers a	nd eigenvectors
	omial, integral as a limit function, integration of some special functions.	7.71	•
E011062	Mathematics II undary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentiability.	Z,ZK	(divergence)
	on given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integr	-	
	drical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gre		
· · · · · · · · · · · · · · · · · · ·	line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vec	tor field through a	surface. The
Gauss-Ostrogradskij the		7.71	
E011009	Mathematics III.	Z,ZK	5
E372083	n ordinary differential equation and infinite series.  Measurement in Engineering	KZ	3
	inteasurement in Engineering  ciples for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and		
instruments.	······································		asurement
=			asurement
E311101	Mechanics I.	Z,ZK	asurement 4
	Mechanics I.  systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replace		4
Modeling of mechanical planar system of forces.	systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replace The balance of the body in the plane - numerically. Body constraints in 3D. Replacement and general spatial equilibrium of a	ement and balance system of forces.	4 e of general The balance
Modeling of mechanical planar system of forces. of the body in 3D. MBS	systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replace 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	ement and balance system of forces.	4 e of general The balance
Modeling of mechanical planar system of forces. of the body in 3D. MBS Internal forces. The bala	systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replace 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 noce of the body and of multibody systems with friction. Mechanical work. Power. Efficiency. Equilibrium position.	ement and balance system of forces. s systems. Center	4 e of general The balance of gravity.
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E331068	Technology I.	Z,ZK	5			
Foundry properties of m	oundry properties of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming processes. Semi-products,					
heating-up. Cutting. Col-	d and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.					
E341014	Technology II.	Z,ZK	5			
Mechanics of chip forma	tion, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining eco	nomics. Automati	on of processes,			
programming of manufa	cture. Engineering metrology. Assembly techniques. Introduction to process planing.					
E121023	Thermomechanics	Z,ZK	5			
Subject covers fundame	ental knowledge in thermodynamics, heat tranfer and gas dynamics					

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

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

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:

Synthesis of mechanisms. Cam mechanisms.

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
E12A500	Fluid Dynamics A	ZK	3	0P+0C	*	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
E31A101	Mechanics I.A Michael Valášek	ZK	2	0P+0C	*	Р
E31A102	Mechanics II.A Michael Valášek	ZK	2	0P+0C	*	Р
E31A107	Mechanics III.A Michael Valášek	ZK	4	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
E12A023	Thermomechanics 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 3 The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. E12A500 Fluid Dynamics A ZK 3 The first course in Fluid Mechanics designed to provide the fundamental tools necessary to analyse a fluid systems and predict its behaviour. E01A056 Mathematics I.A ZK In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions. E01A062 Mathematics II.A ZK Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence 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 field through a surface. The Gauss-Ostrogradskij theorem. Mathematics III.A E01A009 ΖK 2 An introductory course in ordinary differential equation and infinite series. E31A101 Mechanics I.A Modeling of mechanical systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replacement and balance of general planar system of forces. The balance of the body in the plane - numerically and graphically. Body constraints in 3D. Replacement and general spatial equilibrium of a system of forces. The balance of the body in 3D. MBS - Multi Body Systems. Static determinancy and mobility, composition. Analytical and graphical solution of equilibrium for MBS systems. Truss systems. Center of gravity. Internal forces. The balance of the body and of multibody systems with friction. Mechanical work. Power. Efficiency. Equilibrium position and its stability. Statics of fibers. Catenary. E31A102 Mechanics II.A Kinematics of point and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, spherical motion, screw motion, general spatial motion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric, vector and matrix method. Graphical

methods in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms. The principle of virtual work and power.

E31A107 Mechanics III.A 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. The principle of virtual work and power in dynamics. Lagrange equations of 2nd type. Reduction method. Vibrations of systems with 1 DOF. Free oscillations. Forced oscillations excited by harmonic force, by general periodic force and rotating unbalanced mass. Kinematic excitation. Forced oscillations of systems with 1 DOF freedom excited by general force - Duhamel integral. Introduction to nonlinear oscillation. Oscillation of systems with two DOFs, torsional oscillation. Bending vibration, determination of critical speed, dynamic absorber. Stability of motion. Hertz theory of impact. Approximate theory of flywheels.

E01A049 Numerical Mathematics A

Numerical solution of linear and non-linear systems. Basics of interpolation and approximation of functions, least squares method. Numerical solution of ordinary differential equations. Solution od basic linear partial differential equations usinf finite differences method.

E02A041 Physics I.A 7K

Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Electromagnetic field. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures.

E02A025 Physics II.A 7K

2

3

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.

F12A023 Thermomechanics A Subject covers fundamental knowledge in thermodynamics, heat tranfer and gas dynamics

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:

		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
ſ	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

F333038 Fundamentals of Technology I. Ζ 3

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.  Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Michael Valášek Michael Valášek (Gar.)		7	2P+3C	*	Р

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

LSTITO	Wechanics III.	2,21\   1
Modeling. Dynamics of	f systems of particles. Dynamics of body. Mass distribution in a body. Inertia tensor. D'Alembert principle. Inertial effects of motio	on. Balancing of rotating bodies
l <b>–</b>		

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:

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
E131517	Machine Elements and Mechanisms II.	Z,ZK	7	3P+4C	*	P

Characteristics of the courses of this group of Study Plan: Code=12BTA6P-CMS2 Name=08 2012 CMS2 pro TZI anglicky

E131517 | Machine Elements and Mechanisms II. | Z,ZK | 7 | Preliminary design, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pipelines and their accessories and fittings.

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

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 diffi	culties, to take par	t 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 diffi	culties, to take par	t 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 diffi	culties, to take par	t in discussions,
to write a summary, a	eport 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 diffi	culties, to take par	t 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	Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	culties, to take par	t in discussions,
to write a summary, a	eport and an essay, to read technical texts, to master grammar at advanced level.		

2041064 Spanish - Bachelor Exam / FME

Z.ZK

| Z,ZK | Z

Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a 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
E222091	Project	KZ	2	0P+2C		PV
E322091	Project Jana Sobotová	KZ	2	0P+2C		PV
E332091	Project	KZ	2	0P+2C		PV
E362091	Project	KZ	2	0P+2C		PV
E382091	Project	KZ	2	0P+2C		PV
E112091	Project	KZ	2	0P+2C	*	PV
E132091	Project	KZ	2	0P+2C	*	PV
E152091	Project Michal Kolovratník	KZ	2	0P+2C	*	PV
E182091	Project	KZ	2	0P+2C	*	PV
E212091	Project	KZ	2	0P+2C	*	PV
E312091	Project Michael Valášek	KZ	2	0+2	*	PV
E352091	Project	KZ	2	2C	*	PV
E372091	Project Vladimír Hlavá	KZ	2	0P+2C	*	PV
E162091	Project	KZ	2	0P+2C	*	PV
E122091	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

E012091	Project	KZ	2
222091	Project	KZ	2
322091	Project	KZ	2
332091	Project	KZ	2
362091	Project	KZ	2
382091	Project	KZ	2
112091	Project	KZ	2
dividual assignr	ment		
132091	Project	KZ	2
152091	Project	KZ	2
182091	Project	KZ	2
bsolvent se sezr	známí se základy oboru Procesní technika.	·	
212091	Project	KZ	2
312091	Project	KZ	2
dividual assignr	ment. Condition of registration of this course is simultaneous registration of course E3139	91 Thesis (elaboration of bachelor thesis and its defense).	
352091	Project	KZ	2
372091	Project	KZ	2
n individual proje	ject from the branch of specialization (instrumentation, control engineering, informatics), o	r individual work, related to another subject.	
162091	Project	KZ	2
udent will be inf	nformed about basics of environmental engineering and creation of thermal comfort.		
122091	Project	KZ	2
a part of the s	subject students individually improve their theoretical and practical knolidge in subject area	slosed to the theme of their bachelory project.	

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 guarantors (gar.)	Completion	Credits	Scope	Semester	Role
E373991	Bachelor Thesis Vladimír Hlavá	Z	4	0P+0C	*	PV
E123991	Thesis	Z	4	0P+0C	*	PV
E153991	Thesis Michal Kolovratník	Z	4	0P+0C		PV
E183991	Thesis	Z	4	0P+0C		PV
E213991	Thesis	Z	4	0P+0C		PV
E223991	Thesis	Z	4	0P+0C		PV
E313991	Thesis Michael Valášek	Z	4	0+0		PV
E323991	Thesis Jana Sobotová	Z	4	0P+0C		PV
E333991	Thesis	Z	4	0P+0C		PV
E353991	Thesis	Z	4			PV
E363991	Thesis	Z	4	0P+0C		PV
E383991	Thesis	Z	4	0P+0C		PV
E133991	Thesis	Z	4	0P+0C		PV
E013991	Thesis	Z	4	0P+0C		PV
E113991	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	solve his individual theme under guiding of his individual supervising department specialist.	Result is his/her thesis.	
E123991	Thesis	Z	4
Students under sk	killed supervision prepare, consult, working and finalise their bachelory project.	·	
E153991	Thesis	Z	4
E183991	Thesis	Z	4
E213991	Thesis	Z	4
E223991	Thesis	Z	4
E313991	Thesis	Z	4
E323991	Thesis	Z	4
E333991	Thesis	Z	4
E353991	Thesis	Z	4
E363991	Thesis	Z	4
E383991	Thesis	Z	4
E133991	Thesis	Z	4
E013991	Thesis	Z	4
E113991	Thesis	Z	4
Individual assignm	nent	'	

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 Petr Duchá ek, Jan Novák, Miroslav Jílek, Daniel Tischler	Z	2	0P+2C	*	V

E026003 Physics II Seminary Petr Duchá ek, Jan Novák Petr Duchá ek  Z 2 0P+2C * V	E026003	Physics II Seminary	Z	2	ハロエン(・	*	V
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Characteristics of the courses of this group of Study Plan: Code=12B\*A\*V-DOP SEMI Name=05 2012 doporu ené seminá e anglicky

	and detailed or time group or entary riam detail (22 /r r 20). Calmiriam of 2012 deports		
E026002	Physics I Seminary	Z	2
Solving of problems con	rresponding to the lectures of Physics I.	•	
E026003	Physics II Seminary	Z	2
The second section is a second and			\

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  Jaroslava Kommová	Z	2	0+2	L	V
E046118	Czech Advanced 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 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  Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich  Jaroslava Kommová Eliška Vítková (Gar.)	Z	2	0+2	L	V
E046080	German Upper Intermediate Eliška Vítková	Z	2	0+2	Z	V
E046081	German Upper Intermediate  Eliška Vitková, Michaela Schusová, Jaroslava Kommová, Petr Laurich  Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0+2	L	٧
E046082	German Advanced	Z	2	0+2	Z	V
E046083	German Advanced Jaroslava Kommová	Z	2	0+2	L	V
E046076	Jaroslava Kommová	Z	2	0+2	Z	V
E046077	German Beginners Jaroslava Kommová	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

kuizy anglicky								
E046117	Czech - Advanced	Z	2					
Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions.								
Written skills. Ability to	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a	rticles.						
E046125	Czech - Lower Intermediate	Z	2					
Aim: Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	nple way about					
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.							
E046128	Czech - Upper Intermediate	Z	2					
Mapped to the Commor	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional	Czech and comn	non professional					
terminology. Comprehe	nsion of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on inter	mediate level. Bro	adening the					
knowledge technical language.								
E046118	Czech Advanced	Z	2					
Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great difficulties and								

active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientific and

scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.

E046120	Czech for Beginners II.	Z	2
Mapped to the Comm	on European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understar	nding and use of b	asic expressions
of general scientific te	rminology (professional language).		
E046119	Czech Language for Beginners I.	Z	2
Basic vocabulary of e	veryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	ssional language)	1
E046126	Czech Lower Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference A2 Aim: Understanding clearly what is spoken about everyday situations which	a student meets	at school or in
his/her free time and	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional la	nguage.
E046127	Czech Upper Intermediate	Z	2
Understanding standa	rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe exp	eriences and
events, briefly explain	one's opinions and plans. Reading and understanding general and technical texts.		
E046078	German - Lower Intermediate Course	Z	2
Aim: Understanding c	ularly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about th	em. Writing in a si	mple way about
familiar topics. Readin	g and comprehension of simple texts. Improvement of professional language.		
E046079	German Lower Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which	h a student meet	s either at school
or in his/her free time	and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme	ent of professional	language.
E046080	German Upper Intermediate	Z	2
Understanding standa	rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe exp	eroences and
events, briefly explain	one's opinions and plans.		
E046081	German Upper Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students of	omes across at w	ork, at school,
during free time, and	alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and underst	anding general an	d technical texts.
E046082	German Advanced	Z	2
Comprehension of sp	visen language as well as lectures in German on topics familiar to the student. Communication with native speakers, participal	ion in discussions	. Expressing
opinions. Written skills	. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to	echnical articles.	
E046083	German Advanced	Z	2
Mapped to the level of	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given i	n German without	great difficulties
and active participation	n in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compr	ehension of popul	ar-scientific and
scientific articles or te	kts from student's field of studies without difficulties. Grammar structures on advanced level.		
E046076		Z	2
E0.100==	German Beginners	Z	2
E046077			
_0.00	on European Framework of Reference level A1. Basic vocabulary of everyday lifein a written and spoken form. understanding	and use of basic	expressions of

# List of courses of this pass:

Code	Name of the course	Completion	Credits
2041061	English-Bachelor Exam	Z,ZK	2
Mapped to the Comm	non European Framework Level B2. The aim is to under stand spoken language and lectures on technical topics without greater difficu	lties, 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 Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficu	lties, 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 Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficu	lties, 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 Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficu	lties, 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 Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficu	lties, 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 Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficu	lties, to take part in	discussions,
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
E011009	Mathematics III.	Z,ZK	5
· ·	An introductory course in ordinary differential equation and infinite series.		'
E011021	Constructive Geometry	Z,ZK	6
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relat	ions.	ı
E011049	Numerical Mathematics	Z,ZK	4
E011056	Mathematics I.	Z,ZK	8
In the course, greate	r emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connectio	ns between concep	ts. Students
will also get to know to	he procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas:	eigennumbers and e	eigenvectors
	of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.		

E011062	Mathematics II	Z,ZK	8
	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti		
, ,	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, it		
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green	=	
neia, independent	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 vecto Gauss-Ostrogradskij theorem.	i ileiu tiirougii a si	unace. me
E012035	Algorithmization and Programming	KZ	4
	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matri		1
	uput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. System		
and functions. St	ructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Str	ructures. Algorithm	nization of
simple programs	s: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of s	systems of linear e	quations.
E012037	Computer Graphics	KZ	3
The subject is focu	used on the mathematical theory of the curves and surfaces in computer graphics and their visualisation. The Rhinoceros - NURBS m	nodelling for Windo	ows is used
=	to demonstrate the geometrical properties of the curves and surfaces.		
E012091	Project	KZ	2
E013991	Thesis	Z	4
E01A009	Mathematics III.A	ZK	2
E044004	An introductory course in ordinary differential equation and infinite series.	717	
E01A021	Constructive Geometry A	ZK	3
F04 A 0 40	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation		
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 of Solution od basic linear partial differential equations usinf finite differences method.	ordinary differentia	ai equations.
E01A056	Mathematics I.A	ZK	4
	ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection		
-	the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: ei		
	of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.		-
E01A062	Mathematics II.A	ZK	4
-	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti		
	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, to the control of the contro		
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green	=	
neia, independent	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 vecto Gauss-Ostrogradskij theorem.	r neid inrough a si	unace. The
E021025	Physics II.	Z,ZK	4
	rry 5/03 fr.   octromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec	•	
	natter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	-	
Spectra, x-rays, ;las	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper	iments related to	the lectures.
E021041	Physics I.	Z,ZK	7
-	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	-	
	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Col		
insulators. Magr	netic 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.	tainty of direct and	a indirect
E026002	Physics I Seminary	Z	2
L020002	Solving of problems corresponding to the lectures of Physics I.	2	' '
E026003	Physics II Seminary	Z	2
	nded for students who need more detailed practising and improvement (including knowledge from former physics courses, or high-sch	_	
successful finishing	Physics II course. The instructions are analogical to seminars with a short corresponding theoretical background. The link between pl	hysical concepts a	ind methods
	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	-	
	natter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	-	
	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper		
E02A041	Physics I.A	ZK	3
-	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	•	
	netic 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
	mmon European Framework of Reference level A1. Basic vocabulary of everyday lifein a written and spoken form. understanding and	_	1
	general scientific terminology.		
E046078	German - Lower Intermediate Course	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
E046079	German Lower Intermediate	Z	2
	l of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		
	e time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement		
E046080	German Upper Intermediate  andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability t	Z to describe experc	ences and
J	events, briefly explain one's opinions and plans.	accorno expere	

E046081	German Upper Intermediate	Z	2
Mapped to the lev	vel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students com	nes across at wor	k, at schoo
uring free time, ar	nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding	ng general and te	echnical tex
E046082	German Advanced	Z	2
Comprehension	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	n in discussions.	Expressing
opinions.	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical artic	cles.
E046083	German Advanced	Z	2
lapped to the leve	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge	erman without gre	eat difficulti
nd active particip	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	nsion of popular-	scientific a
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
E046117	Czech - Advanced	Z	2
omprehension of	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in disc	cussions. Express	sing opinio
Writt	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to	echnical articles.	
E046118	Czech Advanced	Z	2
apped to the leve	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	ch without great d	lifficulties a
active participati	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-sci	ientific and
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
E046119	Czech Language for Beginners I.	Z	2
Basic voca	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langu	iage)
E046120	Czech for Beginners II.	Z	2
apped to the Cor	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	g and use of basic	c expression
	of general scientific terminology (professional language).		
E046125	Czech - Lower Intermediate	Z	2
im: Understandir	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 simp	le way abo
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
E046126	Czech Lower Intermediate	Z	2
Mapped to the lev	vel of Common European Framework of Reference A2 Aim: Understanding clearly what is spoken about everyday situations which a	student meets at	school or
his/her free tin	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional la	anguage.
E046127	Czech Upper Intermediate	Z	2
Jnderstanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe expe	riences ar
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
E046128	Czech - Upper Intermediate	Z	2
apped to the Cor	nmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	ech and common	n professio
	nprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm		-
	knowledge technical language.		_
E112091	Project	KZ	
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E440004	Individual assignment	112	2
E113991		ı	!
E113991	Thesis	Z	4
	Thesis Individual assignment	Z	4
E113991 E121023	Thesis Individual assignment Thermomechanics	ı	'
E121023	Thesis Individual assignment Thermomechanics Subject covers fundamental knowledge in thermodynamics, heat tranfer and gas dynamics	Z Z,ZK	4
	Thesis Individual assignment Thermomechanics Subject covers fundamental knowledge in thermodynamics, heat tranfer and gas dynamics Fluid Dynamics	Z Z,ZK Z,ZK	4
E121023 E121500	Thesis Individual assignment  Thermomechanics Subject covers fundamental knowledge in thermodynamics, heat tranfer and gas dynamics  Fluid Dynamics The first course in Fluid Mechanics designed to provide the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and predict its leading to the fundamental tools necessary to analyse a fluid systems and the fundamental tools necessary to analyse a fluid systems and the fundamental tools necessary to analyse a fluid systems and the fundamental tools necessary to analyse a fluid systems and the fundamental tools necessary to analyse a fluid systems and the fundamental tools necessary to analyse and the fundamental to	Z,ZK  Z,ZK  pehaviour.	5
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E121023 E121500 E122091 As a	Thesis Individual assignment  Thermomechanics Subject covers fundamental knowledge in thermodynamics, heat tranfer and gas dynamics  Fluid Dynamics The first course in Fluid Mechanics designed to provide the fundamental tools necessary to analyse a fluid systems and predict its I  Project part of the subject students individually improve their theoretical and practical knolidge in subject area slosed to the theme of their barthesis	Z,ZK Z,ZK pehaviour. KZ achelory project.	5 2
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E121023 E121500 E122091 As a E123991 E12A023 E12A500 E131002 eoretical fundant tolerance, dimer	Thesis Individual assignment  Thermomechanics Subject covers fundamental knowledge in thermodynamics, heat tranfer and gas dynamics Fluid Dynamics The first course in Fluid Mechanics designed to provide the fundamental tools necessary to analyse a fluid systems and predict its I Project part of the subject students individually improve their theoretical and practical knolidge in subject area slosed to the theme of their be Thesis Students under skilled supervision prepare, consult, working and finalise their bachelory project.  Thermomechanics A Subject covers fundamental knowledge in thermodynamics, heat tranfer and gas dynamics Fluid Dynamics A The first course in Fluid Mechanics designed to provide the fundamental tools necessary to analyse a fluid systems and predict its I Engineering Design II nentals of GPS (Geometrical Product Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancin is ional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and predictures.	Z,ZK  Z,ZK  pehaviour.  KZ  achelory project.  Z  ZK  Dehaviour.  Z,ZK  pehaviour.  Z,ZK  g, surface texture actice their know	4 5 5 2 4 4 2 3 3 4 4 e., geometriledge from
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E133013	Engineering Design III.	Z	2
E133014	Engineering Design IV.		2
	general principles of a new technical product design, stages of development of a new product, the designer fundamental assignment is	<del>-</del>	1
	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		
E133991	Thesis	Z	4
E141504	Electrical Circuits and Electronics	Z,ZK	4
troduction into th	neory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy of electrical circuits as DC and AC.	ergy. Using Symb	olic-Comple
ethod and Fouri	er transformation for analysis AC circuits supplied with harmonic signal. El. Power and Energy. Introduction into electronics. Principle a	nd typical param	eters of basi
semiconductor c	omponents. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Prir	nciple of analogu	e and digital
	signal processing. Logical circuits, converters, microprocessor.		
E141505	Electrical Machines and Drives	Z,ZK	4
C el. curcuits. El	lectrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transfo	ormer, principle,	construction
3-phase transfo	rmer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-	torque character	stic, speed
ontrol. Synchrono	ous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character	istic. Low-voltage	instrument
	Low-voltage distribution system.		1
E152091	Project	KZ	2
E153005	Fundamentals of Energy Conversions	Z	1
he subject FEC	clarify the reasons, procedures and consequences of energy conversions from sources to applications. 1. Introduction. Energy, forms a	and transformation	ns of energ
tructure of prima	ry sources to cover world energy consumption. World reserves, advances and depletion of primary energy sources. Situation on the W	orld, EU and Cze	chia 2. Foss
	and properties. Secondary fuels. Combustion of fossil fuels. Combustion equipment and their efficiency. Ecological consequences of co		
-	arnot's comparison cycle. Thermal efficiency. 4. Rankine steam cycle, thermal and real efficiency. Steam circulation carnotization. Surve	-	-
	. Internal heat transfer, carnotization. thermal and real efficiency. Combine cycle power plant. 6. Cooling cycles, heat pumps, organic R		
uid, efficiency x (	CoF. 7. Engines with internal combustion (Otto, Diesel, Atkinson, Miller, etc), Stirling cycle, Family of Kalina cycles. 8. Renewable sou	ırces, application	, importance
	problems). Direct transformation (heat->Electr.). Special applications.		1
E153991	Thesis	Z	4
E162091	Project	KZ	2
	Student will be informed about basics of environmental engineering and creation of thermal comfort.		
E181026	Momentum, Heat and Mass Transfer	Z,ZK	5
Fundamentals of	transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical	energy equation	. Residence
me distributions i	n continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and ther	mal radiation. Mu	ılticompone
	systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.		
E182019	Chemistry	KZ	3
General chemist	try from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties	of matter, therm	odynamics,
	m, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher		-
	oriented upon the material properties measurement.		
E182091	Project		
		K7	2
L 102001		KZ	2
	Absolvent se seznámí se základy oboru Procesní technika.		<u>'</u>
E183991	Absolvent se seznámí se základy oboru Procesní technika.  Thesis	Z	4
E183991 E212091	Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Project	Z KZ	4 2
E183991 E212091 E213991	Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Project  Thesis	Z KZ Z	4 2 4
E183991 E212091	Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Project	Z KZ	4 2
E183991 E212091 E213991	Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Project  Thesis	Z KZ Z	4 2 4
E183991 E212091 E213991 E222091 E223991	Absolvent se seznámí se základy oboru Procesní technika.  Thesis Project Thesis Project	Z KZ Z KZ	4 2 4 2
E183991 E212091 E213991 E222091 E223991 E311101	Absolvent se seznámí se základy oboru Procesní technika.  Thesis Project Thesis Project Thesis Project Thesis	Z KZ Z KZ Z Z,ZK	4 2 4 2 4 4
E183991 E212091 E213991 E222091 E223991 E311101 Modeling of med	Absolvent se seznámí se základy oboru Procesní technika.  Thesis Project Thesis Project Thesis Project Thesis Absolvent se seznámí se základy oboru Procesní technika.	Z KZ Z KZ Z Z,ZK nent and balance	4 2 4 2 4 4 4 4 e of general
E183991 E212091 E213991 E222091 E223991 E311101 Modeling of mediplanar system of	Absolvent se seznámí se základy oboru Procesní technika.  Thesis Project Thesis Project Thesis Project Thesis Project Thesis Chanical systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replacer	Z KZ Z KZ Z Z,ZK ment and balance system of forces.	4 2 4 2 4 4 4 4 Find the balance
E183991 E212091 E213991 E222091 E223991 E311101 Modeling of mediplanar system of	Absolvent se seznámí se základy oboru Procesní technika.  Thesis Project Thesis Project Thesis Project Thesis Project Thesis Absolvent se seznámí se základy oboru Procesní technika.	Z KZ Z KZ Z Z,ZK ment and balance system of forces. systems. Cente	4 2 4 2 4 4 4 4 e of general The balance
E183991 E212091 E213991 E222091 E223991 E311101 Modeling of mediplanar system of of the body in 3	Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Project  Thesis  Project  Thesis  Project  Thesis  Project  Thesis  Nechanics I.  Chanical systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replacer forces. The balance of the body in the plane - numerically. Body constraints in 3D. Replacement and general spatial equilibrium of a sid. MBS - Multi Body Systems. Static determinancy and mobility, composition. Analytical solution of equilibrium for MBS systems. Truss Internal forces. The balance of the body and of multibody systems with friction. Mechanical work. Power. Efficiency. Equilibrium positions.	Z KZ Z KZ Z Z,ZK ment and balance system of forces. systems. Cente osition.	4 2 4 2 4 4 4 e of general The balance r of gravity.
E183991 E212091 E213991 E222091 E223991 E311101 Modeling of mediplanar system of of the body in 3	Absolvent se seznámí se základy oboru Procesní technika.  Thesis  Project  Thesis  Project  Thesis  Project  Thesis  Project  Thesis  Nechanics I.  Chanical systems. Determination of force. Constraints and equilibrium of a point. Moment and Torque. Body constraints in 2D. Replacer forces. The balance of the body in the plane - numerically. Body constraints in 3D. Replacement and general spatial equilibrium of a sid. MBS - Multi Body Systems. Static determinancy and mobility, composition. Analytical solution of equilibrium for MBS systems. Truss Internal forces. The balance of the body and of multibody systems with friction. Mechanical work. Power. Efficiency. Equilibrium pomechanics II.	Z KZ Z KZ Z Z,ZK ment and balance system of forces.* s systems. Cente osition. Z,ZK	4 2 4 2 4 4 4 4 e of general The balance or of gravity.
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Automatic control ke transfer functio via programmab	MATLAB software as a common platform of control engineers (MATLAB is used on all including most of the laboratory classes	tudents begin to	ol and contro work with
Automatic control ke transfer functio	·	tudents begin to	and contro
Automatic control ike transfer functio		•	and contro
	ns, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrate		ina practice
	ers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic	•	
E371047	Automatic Control	Z,ZK	5
E363991	Thesis	Z	4
E362091	Project	KZ	2
E353991	Thesis	Z	4
E352091	Project	KZ	2
	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.		,
	ormation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econom		_
E341014	Technology II.	Z,ZK	5
E333991	Thesis	Z	4
ne study of manu	as casting, forming and welding, including basic terms, methods and materials.	diacturing technic	ologies suc
	Fundamentals of Technology 1.  facturing processes forms a core subject area for a majority of mechanical enginnering stdents. It contains basic concept of three man		_
E333038	Findamentals of Technology I.	Z	3
E332091	Project	KZ	2
ounary properties	of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments		mi-product
E331068	Technology I.	Z,ZK	5
E323991	Thesis Table 15 To	Z 7/4	4
E322091	Project	KZ	2
	rials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iro		
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deform		
E322029	Materials Science I.	KZ	3
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materia		
undamentals of m	etallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the	rmo-mechanica	   processing
E321039	Materials Science II.	Z,ZK	4
	tion. Bending vibration, determination of critical speed, dynamic absorber. Stability of motion. Hertz theory of impact. Approximate the		o, 10.0.0.1a.
oscilla	of systems with 1 DOF. Free oscillations. Forced oscillations excited by harmonic force, by general periodic force and rotating unbalance s of systems with 1 DOF freedom excited by general force - Duhamel integral. Introduction to nonlinear oscillation. Oscillation of syster		
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