Study plan

Name of study plan: B TZSI 2021 - prezen ní

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: 156
Elective courses credits: 30
Sum of credits in the plan: 186

Note on the plan: odebrány p edm ty typu alfa, p vodní minimální po et kredit pro absolvování studijního

plánu byl 224

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 135

The role of the block: P

Code of the group: 01P1/B2342-B/FSI23P Name of the group: 1. B TZSI (s KVI a ZT1)

Requirement credits in the group: In this group you have to gain 29 credits

Requirement courses in the group: In this group you have to complete 8 courses

Credits in the group: 29

Note on the group:

odebrány předměty alfa, původní skupina 01P1/B2342-B/FSI17P

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
2021026	Physics I	Z,ZK	5	4P+1C+1L	. L	Р
2313028	Career in Engineering Václav Bauma, Zbyn k Šíka, Michael Valášek Michael Valášek Michael Valášek (Gar.)	Z	2	1P+1C	Z	Р
2011018	Constructive Geometry Jan Halama, Ivana Linkeová, Marta Hlavová, Martin Hanek, Milana Kittlerová, Nikola Pajerová, Vladimír Prokop, David Trdli ka, Jaroslav Cibulka Ivana Linkeová Ivana Linkeová (Gar.)	Z,ZK	5	3P+2C	1	Р
2011067	Mathematics I. Gejza Dohnal	Z,ZK	6	4P+4C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2132031	Engineering Design I. Jan Kanaval, František Lopot, Karel Petr, Marek Štádler, Roman Uhlí Karel Petr Karel Petr (Gar.)	KZ	3	1P+2C	1	Р
2333008	Fundamental of Technology I. Marie Kola íková	Z	2	1P+1C	1	Р

Characteristics of the courses of this group of Study Plan: Code=01P1/B2342-B/FSI23P Name=1. B TZSI (s KVI a ZT1)

2021	026	Physics			Z,ZK	5			
Kinem	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. Oscillation								
waves	waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors,								
insula	insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression,								
measu	rement of experir	ments relate	d to the led	ctures.					

2313028	Career in Engineering	Z	2		
The goal is to teach the	he goal is to teach the principles of engineering, tits fundamental concepts, personal profile and career procedure in industrial enterprize.				
2011018	Constructive Geometry	Z,ZK	5		
The subject is focused	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.				
2011067	Mathematics I.	Z,ZK	6		

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.

2372041	Computer Support for Study	KZ	3				
The course introduces s	The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Studen						
gain practical skills by c	reating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical	-based WWW pag	ge.				
2132031	Engineering Design I.	KZ	3				
Basic of technical repre	Basic of technical representation, dimensioning and tolerancing.						
2333008	Fundamental of Technology I.	Z	2				

Code of the group: 02P1/B2342--/FSI23P Name of the group: 2. B TZSI (s ZT2)

Requirement credits in the group: In this group you have to gain 31 credits

Requirement courses in the group: In this group you have to complete 9 courses

Credits in the group: 31 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
2021027	Physics II	Z,ZK	4	2P+2L		Р
2381054	Management and Economics of the Enterprise	Z,ZK	4	2P+2C	*	Р
2011068	Mathematics II.	Z,ZK	6	4P+4C		Р
2322029	Materials Science I. Jana Sobotová	KZ	3	2P+1L	2	Р
TV-2	Physical Education	Z	1		L	Р
TVK-L	Physical Education Course	Z	1	7dní	L	Р
2121046	Thermomechanics Tomáš Hyhlík	Z,ZK	5	3P+1.4C+06L	-	Р
2343010	Fundamentals of Technology II. Pavel Novák	Z	2	1P+0C+1L	_ 2	Р

Characteristics of the courses of this group of Study Plan: Code=02P1/B2342--/FSI23P Name=2. B TZSI (s ZT2)

2021027 Physics II
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.

2381054 Management and Economics of the Enterprise Z,ZK 4

The subject is intended to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasoning and to help them understand the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience to be able to communicate with economists in organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of products and services. Every technician will encounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the operating budget. In the field of management, they will learn basic management functions and their content. Furthermore, they will learn how to use network analysis in project management. For decision-making purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced.

2011068 | Mathematics II. | Z,ZK | 6

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.

2322029 | Materials Science I. | KZ | 3 History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation, recrystallization and fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron-carbon phase diagram.

TV-2	Physical Education	Z	1
TVK-L	Physical Education Course	Z	1
2121046	Thermomechanics	Z,ZK	5

Basic laws of thermodynamics. State equation of ideal gas. Ideal and semi-ideal gases and their properties. Reversible and typical irreversible processes of ideal and semi-ideal gases. Mixtures of gases. Real gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of chemical thermodynamics. Thermodynamics of chemical reactions. Basic cases of heat transfer. Steady heat conduction. Heat convection. Similarity, a criterion equation. Heat transfer during phase changes. Thermal radiation. Combined cases of heat transfer. Heat exchangers.

2343010 Fundamentals of Technology II. Z l Introduction to machining. Principle of cutting process. Working parameters. Cutting tools - general characteristics, geometry, designation and symbols. The basic machining processes,

their mechanics, equipment, conditions, material removal rate determination. The shapes produced, commercial tolerance and surface finish obtained. Laboratories.

Code of the group: 03P1/B2342--/FSI23P

Name of the group: 3. B TZSI

Requirement credits in the group: In this group you have to gain 31 credits

Requirement courses in the group: In this group you have to complete 8 courses

Credits in the group: 31

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Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Jan Sko ilas, Adam Krupica, Filip Randák Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011009	Mathematics III	Z,ZK	5	2P+2C	*	Р
2311101	Mechanics I. Václav Bauma, Zbyn k Šika, Michael Valášek, Pavel Bastl, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Zbyn k Šika Zbyn k Šika (Gar.)	Z,ZK	4	2P+2C	*	Р
2121502	Fluid Dynamics Tomáš Hyhlík, Hana Schmirlerová Tomáš Hyhlík Tomáš Hyhlík (Gar.)	Z,ZK	5	3P+2C	Z	Р
2321039	Materials Science II. Ji í Cejp, Jakub Horník, Jana Sobotová, Elena ižmárová, Eliška Gal íková, Pavlína Hájková, Jakub Horváth, Stanislav Krum, Vladimír Mára, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2341014	Technology II. Pavel Novák	Z,ZK	5	2P+0C+2L	*	Р
TV-1	Physical Education	Z	1		Z	Р
2012035	Algorithmization and Programming Fundamentals Petr Svá ek	KZ	4	1P+2C	*	Р

	Petr Svá ek		
Characteristic	s of the courses of this group of Study Plan: Code=03P1/B2342/FSI23P Name=3. B TZ	SI	
2182019	Chemistry	KZ	3
General chemistry	y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and	d properties of matter, therm	odynamics,
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.		
2011009	Mathematics III	Z,ZK	5
An introductory co	purse in ordinary differential equation and infinite series.		
2311101	Mechanics I.	Z,ZK	4
Mechanics I deals	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies	s and their systems with and	without friction
There are introduc	ced the methods of description of position and motion of particles and rigid bodies.		
2121502	Fluid Dynamics	Z,ZK	5
2321039	Materials Science II.	Z,ZK	4
Fundamentals of r	metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and t	thermal and thermo-mechani	cal processing
technical iron-carb	oon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.		
2341014	Technology II.	Z,ZK	5
mechanics of chip	formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, mac	chining economics. Automatio	n of processe
programming of m	nanufacture. Engineering metrology. Assembly techniques. Introduction to process planing.		
TV-1	Physical Education	Z	1
2012035	Algorithmization and Programming Fundamentals	KZ	4
	Algorithmization and Programming Fundamentals MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expre		•
Programming in M		ession. Matrices, vectors and	operations.
Programming in M Writting M-script. I	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expre	ession. Matrices, vectors and rations. Systems of linear equ	operations. uations. Scrip

Code of the group: 05P1/B2342--/FSI23P

Name of the group: 5. B TZSI

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

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

Credits in the group: 26 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák Zuzana Sedlecká Jan Chyský (Gar.)	Z,ZK	4	2P+08C+14L	*	Р
2311107	Mechanics III. Tomáš Vampola	Z,ZK	7	2P+3C	5	Р
2111103	Strenght of Materials II Miroslav Španiel, Jan ezní ek, Tomáš Mareš, Karel Doubrava, Ctirad Novotný, Zden k Padovec, Michal Bartošák, Ji í Kuželka, Martin Nesládek, Tomáš Mareš Miroslav Španiel (Gar.)	Z,ZK	5	3P+3C	Z	Р

2372083	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
2153005	Fundamentals of Energy Conversions Jan Havlík	Z	1	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=05P1/B2342--/FSI23P Name=5. B TZSI

Characteristics	of the courses of this group of Study Plan: Code=05P1/B2342/FSI23P Name=5. B TZSI		
2131512	Machine Elements and Mechanisms I.	Z,ZK	6
Joints and joining el	ements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotter	s, keys). Mechanio	al transmission
(belt, chain, friction,	gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preload	ed connecting bol	s, clamped,
pressed, splined an	d key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple as	ssembly units is al	so indispensabl
seminar work.			
2141504	Electric Circuits and Electronics	Z,ZK	4
Introduction into the	ory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators	of energy. El. Pow	er and Energy.
Introduction into ele	ctronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabiliz	er, power control,	operational
amplifier). Analogue	and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.		
2311107	Mechanics III.	Z,ZK	7
Mechanics III deals	with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are	described. Method	ds for describing
and solving vibration	ns of systems.		
2111103	Strenght of Materials II	Z,ZK	5
This course is to pro	vide an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theo	ry of elasticity and	plasticity.
2372083	Measurement in Engineering	KZ	3
Overview of sensor	principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration an	d verification of me	easurement
instruments.			
2153005	Fundamentals of Energy Conversions	Z	1
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Code of the group: 06P1/B2342--/FSI21P

Name of the group: 6. B TZSI

Requirement credits in the group: In this group you have to gain 18 credits

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

Credits in the group: 18 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
2131026	Machine Elements and Mechanisms II František Lopot	ZK	3	3P+0C	*	Р
2141505	Electrical machines and drives Jaroslav Novák	Z,ZK	4	2P+06C+14L	*	Р
2133025	Design František Lopot	Z	4	0P+4C	*	Р
2181026	Momentum, Mass and Heat Transfer Tomáš Jirout	Z,ZK	5	3P+1C	*	Р
2383001	Fundamentals of Law	Z	2	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=06P1/B2342--/FSI21P Name=6. B TZSI

Machine Elements and Mechanisms II

			_				
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.							
2141505 Electrical machines and drives Z,ZK 4							
AC el. curcuits. Electric	al power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Tra	insformer, principle	e, 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.						
2133025	Design	Z	4				
Design, design calculat	ions and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and	clutches.					
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5				
Fundamentals of transp	, oort phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani	cal energy equation	n. Residence				
time distributions in con	tinuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and	thermal radiation.	Multicomponer				
systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.							
2383001	Fundamentals of Law	Z	2				
Basic orientation in lega	al system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to professional equipment of each expert with university degree.	ovide a view into th	ne Czech Lega				
Order, particular sources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is necessary for students to know							

ZK

Name of the block: Compulsory elective courses Minimal number of credits of the block: 19

to prepare professional presentations and to understand basic structures between law and engineering

our legal institutions, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws. At the same time the course leads students to know some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relationships and to make them ready

The role of the block: PV

Code of the group: 03Q1/B2342--/FSI18P

Name of the group: 3. B TZSI

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 at least 1 course (at most 4)

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
2023013	Practical Class in Physics I Tomáš Horaž ovský, Zuzana Budinská, Petr Duchá ek, Jan Koller Zuzana Budinská	Z	2	0P+2C		PV
2013044	Mathematics Repetitory Jan Halama, Milana Kittlerová, Ji í Holman, Lud k Beneš Ivana Linkeová (Gar.)	Z	2	0P+2C	*	PV
2133013	Engineering Design III. Jan Kanaval, František Lopot, Roman Uhlí, Jan Hoidekr, Št pán Tichý, David Skalický Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	PV
2013066	Basics of Stochastics Geiza Dohnal Geiza Dohnal Geiza Dohnal (Gar.)	Z	2	0P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=03Q1/B2342--/FSI18P Name=3. B TZSI

2023013	Practical Class in Physics I	Z	2				
The subject is inteded	The subject is inteded for students who need more detailed practising and improvement (including knowledge from former physics coursess, or high-school knowledge) necessary for						
successful finishing Ph	successful finishing Physics I course. The instructions are analogical to seminars with a short corresponding theoretical background. The link between physical concepts and methods						
of solution of typical pro	of solution of typical problems is underlying.						
2042044	Methamatica Densitani	7	2				

2013044	Mathematics Repetitory	_	_				
Lessons are intended for students who expect problems at exams from mathematics. Lessons have a form of seminary with a short introduction to theory and a variety of exercises							
ranging sometimes even from level of grammar school and aimed mainly to Mathematics I and III.							
2133013	Engineering Design III.	Z	2				

2133013	Engineering Design III.	Z	2
Design of assembly unit			
2013066	Basics of Stochastics	Z	2

Students will learn the basics of probability theory (random experiment, probability, random variable, probability distribution, characteristics of random variables, probability models, multivariate random variable and its characteristics, laws of large numbers and limit theorems) and the basic principles of statistical inference (frequency analysis, parameter estimation, hypothesis testing, regression analysis and more). The application of this knowledge we can found in all areas where it is necessary to evaluate the results of experiments, perform parameter estimation based on measurements, application of stochastic simulation methods, prediction of random processes and time series assessment. Also important is the use of these methods for the control of quality, reliability and risk assessment.

Code of the group: 04Q1/B2342--/FSI19P

Name of the group: 4. B TZSI

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 at least 1 course (at most 11)

Credits in the group: 2 Note on the group:

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Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2213014	Transportation and Aerospace Technology Zden k Novák	Z	2	0P+2C	L	PV
2323014	Materials of the 21st Century	Z	2	0P+2C		PV
2383020	Modern Management of Businesses and Projects	Z	2	0P+2C		PV
2333040	Perspective Production in Engineering Pavel Rohan	Z	2	0P+2C	4	PV
2183014	Progressive Processes of Energy Utilization Tomáš Jirout	Z	2	0P+2C	*	PV
2353041	Practical introduction to production machines	Z	2	0P+2C+0L	-	PV
2023012	Practical Class in Physics II Zuzana Budinská	Z	2	0P+2C		PV
2343040	Manufactory	Z	2	0P+2C		PV
2133014	Engineering Design IV. František Lopot	Z	2	0P+2C	L	PV
2313040	Introduction into applied mechanics and mechatronics Michael Valášek	Z	2	0P+2C	*	PV

2373040	Robot Control Introduction Jakub Jura	Z	2	0P+0C+2L	*	PV
Characteristics of the courses of this group of Study Plan: Code=04Q1/B2342/FSI19P Name=4. B TZSI						
2213014 Tra	nsportation and Aerospace Technology				Z	2
Design and testing of ground	transportation vehicles, control systems, aircraft structures and propulsions. Selected	topics of transpo	rtation and	aerospace te	echnology ar	e presented
in seminars and by means of	laboratory exercises. Information about possibility of master study and project work at C	CTU, trainee and i	internship i	n reputable fi	rms, both in	transportation
and aerospace technology.						
2323014 Ma	terials of the 21st Century				Z	2
The subject is focused on ch	aracterization of structural and functional materials, which are currently used in technic	al practice. Attent	ion is paid	to technologi	cal methods	of production
of advanced materials, predi	ction and own evaluation of their properties. In addition, development trends for individu	ual types of mate	rials are dis	scussed		
2383020 Mo	dern Management of Businesses and Projects				Z	2
The main objective of the co	urse is to introduce students to modern trends and approaches that have emerged in c	corporate governa	ince in rece	ent years and	will shape t	he future. The
course introduces the main to	echnical and technological trends that will significantly transform the industry, its econor	mic, environmenta	al benefits a	and risks in th	ne near futur	e. The second
main topic represent informa	tion systems for management and planning of business processes and for support of m	nanagerial decisio	n-making.	Furthermore	, the course	deals with the
issue of modern approaches	and tools for production management and ends with issues of current trends in project	t management. T	he focus of	the course is	not to provi	ide students
•	out to provide a general view of current trends and approaches in key areas of corporat	te governance. Th	ne required	depth of indi	vidual areas	is further
	ourses in the Master's degree program.					
	rspective Production in Engineering				Z	2
The subject focuses on the to	eaching of advanced engineering technology, modern trends in production managemen	nt, development o	of new adva	inced materia	als, testing o	f materials,
energy production and prese	ntation of the virtual factory. Classes will be a combination of practical nature of work in	n laboratories FS	, instructior	nal videos, ar	nd tours to th	e high-tech
material-working.						
2183014 Pro	ogressive Processes of Energy Utilization				Z	2
The scope of this subject is to	introduce the fields of study in bachelor study programs "Engineering" and "Theoretical	Fundamentals in	Mechanica	l Engineering	ı". Student ge	ets knowledge
	ental, Power and Process Engineering . In the field of Environmental Engineering, fund		-	_		
	ction against dust and noise are presented. As for Power Engineering, heat and electric					
	ese energy forms in the industrial and private sectors are discussed. In the field of Proc					
	stries, pharmacy, biotechnologies and waste treatment technologies are presented. Bas	ed on this informa	ation, stude	nt gets finally	more detaile	ed information
	ief seminar paper on selected topic, in which she/he is interested in.					_
· ·	actical introduction to production machines				Z	2
·	introduction to production machines including modern CNC technologies and the basi	_		-	-	
·	ire the necessary knowledge of the production cycle of basic types of production mach				•	
- · ·	procedures used and determination of technological conditions. Students will also fami			-	-	
-	ion proper, testing procedures and product measurement. Basic statistical and operatic	onal diagnostic m	ethous of fi	leasurement	will also be	demonstrated
	force, noise, vibration, temperature etc.)				7	
	actical Class in Physics II	f		 	_ 	2
•	Idents who need more detailed practising and improvement (including knowledge from			-		- 1
of solution of typical problem	Il course. The instructions are analogical to seminars with a short corresponding theore	elicai background.	THE IIIK DE	etween physi	cai concepts	and methods
	· ·				7	
	nufactory	nd avality manag	amant avat	ama Tha aas	Z	2
•	asic competencies profiling the institute - machining, technological design, metrology a	. , .	•			
	ises and excursions to industrial partners. In this way, students will get acquainted with / CAM systems, machining tools, conventional but also unconventional machining met					
			_			1
students will be introduced to the principles and methodology for designing production processes and systems using modern methods of production preparation (Lean Production, Just In Time, Make or Buy) and advanced software for production preparation and planning. In the field of technological design with the issue of designing production processes and complex						
production systems. Within metrology and quality management systems, students will then be introduced to modern product quality control technologies in the field of coordinate						
•	and geometric tolerances, surface texture. In the form of professional excursions to ind			-		
	ne product life cycle? marketing, construction, technical preparation of production, enging					
in 4-hour blocks, once every	14 days due to higher efficiency of teaching within individual teaching blocks and excu	rsions.	·	•		
2133014 En	gineering Design IV.				Z	2
	oduction into applied mechanics and mechatronics				Z	2
	bot Control Introduction				Z	2
Į.	oncepts and principles of robotics. Students will use construction kit for design, assemb	ble and programn	ne the robo	l t. This subjec	į.	
students of the second year of the bachelor study. There is no prerequisite for this subject.						
,	• • • •					

Code of the group: 05Q1/B2342--/FSI20P

Name of the group: 5. B TZSI - Oborový p edm t I.

Requirement credits in the group: In this group you have to gain at least 3 credits (at most 5)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 18)

Credits in the group: 3

Note on the group:

Note on the gro	up.					
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
2371110	Industrial Automation Lukáš Novák, Šárka N mcová, Pavel Trnka, Jakub Jura, Jan Hošek, Matouš Cejnek, Martin Vitoušek Pavel Trnka Pavel Trnka (Gar.)	Z,ZK	4	2P+2C+0L		PV
2211130	Transport Engineering Josef Kolá Josef Kolá (Gar.)	Z,ZK	4	2P+2C+0L	*	PV

	T		1	1 1		
2121047	Hydro a Thermodynamics Michal Schmirler Tomáš Hyhlík Tomáš Hyhlík (Gar.)	Z,ZK	4	2P+2C		PV
2221221	Aeronautics and Astronautics Tomáš enský, Jan Klesa, Jaroslav Kousal, Svatomír Slavík Svatomír Slavík (Gar.)	Z,ZK	4	2P+2C+0L		PV
2011715	Mathematical Modeling in Technical Applications	Z,ZK	3	2P+2C	*	PV
2381006	Methods and Tools for Managerial Decisionmaking	Z,ZK	3	2P+2C		PV
2151705	Renewables energy sources	Z,ZK	4	2P+2C		PV
	Process equipment and production lines	<u> </u>				
2181125	Lukáš Krátký	Z,ZK	3	2P+2C		PV
2341001	Metrology Pavel Novák	Z,ZK	5	2P+0C+2L	*	PV
2321500	Technical Materials I Jakub Horník, Jana Sobotová, Elena ižmárová, Jakub Horváth, Stanislav Krum, Vladimír Mára, Ta ana Vacková, Zde ka Jeníková Elena ižmárová Elena ižmárová (Gar.)	Z,ZK	4	2P+2C+0L		PV
2161022	Environmental Engineering Ji í Bašta Ji í Bašta Ji í Bašta (Gar.)	Z,ZK	4	2P+2C+0L	5	PV
2331075	Design Consideration Ladislav Kola ík, Aleš Herman, František Tatí ek, Ji í Kucha Ladislav Kola ík Ladislav Kola ík (Gar.)	Z,ZK	4	2P+2C+0L		PV
2131060	Transport Technology František Lopot, Roman Uhlí, Jan Hoidekr, Zden k ešpíro František Lopot František Lopot (Gar.)	Z,ZK	4	2P+2C+0L	Z	PV
2021014	Physics - Selected Topics	Z,ZK	3	2P+2C		PV
2311083	Selected Topics of Mechanics and Mechatronics Václav Bauma, Zbyn k Šika, Michael Valášek, Pavel Steinbauer Michael Valášek Michael Valášek (Gar.)	Z,ZK	4	2P+2C+0L		PV
2351094	Production Technology Vladimír Andrlík, Jan Smolík, Tomáš Krannich Vladimír Andrlík Vladimír Andrlík (Gar.)	Z,ZK	4	2P+2C+0L		PV
Characteristics of th	e courses of this group of Study Plan: Code=05Q1/B2342/FSI20	0P Name=5.	B TZSI	- Oborový	p edm	t I.
2371110 In	dustrial Automation			Z	,ZK	4
In this course, students will	l learn the basic principles of automated systems used in current industrial practice, espe	cially focused o	n the use	of advanced p	rocedures ir	the spirit of
•	pecifically, these are PLCs and PLC networks, Distributed Control Systems (DCS) and Dist		-			
· ·	rives, Industrial sensors, Micro machining, Methods of system integration and MES system					=
	llection), Databases and cyber security, Data analysis, Machine vision (including optical process and Cyber security, Data analysis, Machine vision (including optical process and Cyber security).	processing and	ımage pre			
	ransport Engineering	uton and dimona	iona of val	I	,ZK	4
	tems - characteristics, distribution and application vehicles. Characteristics of transport rouse of the vehicles. Analysis of the driving cycle. Internal combustion engines - classification					•
	ne function of basic structural units and groups of vehicles.	,	,		p	
2121047 H	ydro a Thermodynamics			Z	,ZK	4
2221221 A	eronautics and Astronautics				,ZK	4
	an introductory course in the field of aircraft technology for bachelor students. The course	serves as a the	eoretical si			achelor thesi
in the field of aircraft technology	ology aimed at aircraft structures, engines and space. The first block is focused on obtain	ing an overview	of aircraft	structures and	d their opera	ating loads,
· · · · · · · · · · · · · · · · · · ·	on technologies and aircraft systems. The second block introduces the basics of aerodyna	amics. The follow	v-up engin	er section dea	ls with the p	rinciples and
	units. The space section presents input information inthe field of space technology.				· · · · · · · · · · · · · · · · · · ·	
	lathematical Modeling in Technical Applications				,ZK	3
	models for basic engineering problems. Basic principles of solution by means of mathem	-				
	inite difference, finite volume and finite element methods including different topology of do	omain discretiza	tion (mesh	ies). Numerica	I simulation	s will be aime
	ng problems of continuum mechanics.				717	
· ·	lethods and Tools for Managerial Decisionmaking				,ZK	3
•	roject management approach. During the course are solved cases that respond to practic					
-	among costs, capacity of resources and the price. And also on the calculation typical kind			-		
• • •	cision. The students are concerning on the right way of operational budget creation and a ized models are used by explanation.	issessment. The	HIK ON TH	e internal com	pany accou	nung is snow
OAFAZOF D	почото ите изеи му ехріанаціон.				71/	

The course deals with overview of the currently used renewable energy sources. In a wider context, it concerns with their domestic as well as world-wide potential, possibilities of their utilization and possible impacts on the environment. The course discusses in deeper details some of them, especially are emphasized the source having the highest potential in the Czech Republic this is mostly hydropower, wind energy, solar energy and energy from biomass. Other renewable energy sources are to a smaller extent discussed as well, e.g.

Metrology, intergration into quality control, legal metrology, metrology system. Geometrical quantities metrology. Measurement uncertainty. Primary and secondary standarts. Measurement in 1, 2, end 3 coordinates. Laserinterferometres and their applications. Geometrical surface properties. Form - and position deviations. Surface structure - roughness, wawiness.

The course is a continuation of the subjects Materials Science I and II and Materials of the 21st Century. Students will become familiar with applications of a wide range of engineering

materials as well as with the material and physical requirements that determine their use. The lectures are complemented by invited talks from industry experts.

Z,ZK

Z,ZK

Z,ZK

Z,ZK

Z,ZK

3

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2151705

2181125

2341001

2321500

geothermal energy, tidal energy, etc.

Measurement automatisation.

Metrology

Application of a theory in environmental engineering

Technical Materials I

Environmental Engineering

Renewables energy sources

Process equipment and production lines

2331075 Design Consideration Z,ZK 4
Relations between construction, production technology and economic aspects. Product design with regard to casting, forming, welding, machining and assembly technologies. The basis for choosing material and technology. Structural modifications of parts with regard to quality and production possibilities. Use of CNC technology.

2131060	Transport Technology	Z,ZK	4
2021014	Physics - Selected Topics	Z,ZK	3

The subject gives students a deeper and wider knowledge of selected parts of fundamental physics courses with respect to usage of physical phenomena in technological applications (for example lasers, electron beams, roentgen diffraction, thermophysical properties of matter). Students can achieve and deepen their knowledge in solid state physics, liquids and they will be acquainted with modern method of diagnostics of their properties. The subject professionally profile students for a physical topics in a future study program Applied sciences in Mechanical Engineering.

2311083	Selected Topics of Mechanics and Mechatronics	Z,ZK	4
2351094	Production Technology	Z,ZK	4

Manufacturing machines and equipment contains three basic parts. These are forming machines, machine tools and industrial robots and manipulators. Characteristics of machines and equipment for realization of discrete technological processes will be explained, technical parameters, basics of construction of production machines and equipment, OS, TS design, automation of production machines and equipment, industrial manipulators and robots, their applications, single-purpose and modular machines, production lines. Examples of applications of production machines and equipment.

Code of the group: 06Q1/B2342--/FSI19P

Name of the group: 6. B TZSI - Oborový projekt II.

Ji í Fürst (Gar.)

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 at least 1 course (at most 18)

Credits in the group: 4

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 Completion Credits Code Scope Semester Role members) Tutors, authors and guarantors (gar.) 2382122 ΚZ 0P+4C+0L Branch Project II. 4 PV Branch Project II. 2372122 ΚZ 4 0P+4C+0L PV Vladimír Hlavá Vladimír Hlavá (Gar.) Branch Project II. 2022122 ΚZ 4 0P+4C+0L PV Zuzana Budinská Branch Project II. 2112122 ΚZ 4 0P+4C+0L PVTomáš Mareš 2122122 ΚZ 4 0P+4C+0L Branch Project II. Branch Project II. 2132122 ΚZ 4 0P+4C+0L PV Eliška Cézová František Lopot Branch Project II. 2152122 Vojt ch Smolík, Mat j Vodi ka, Jan Havlík, Jan Špale, Jan Prehradný, Jan Syblík, Michal Cihlá , Jan Hrdli ka, Jan Opat il, **Jan Št pánek** ΚZ 4 0P+4C+0L PV **Branch Project II.** 2162122 ΚZ 4 0P+4C+0L 6 PV Martin Barták **Branch Project II.** 2182122 ΚZ 0P+4C+0L PV Lukáš Krátký, Ji í Moravec Lukáš Krátký Lukáš Krátký (Gar.) **Branch Project II.** K7 2212122 4 0P+4C+0L P\/ Petr Hatschbach **Branch Project II.** 2222122 K7 4 0P+4C+0L PV Milan Dvo ák Milan Dvo ák (Gar.) 2242122 0P+4C+0L ΚZ 4 Branch Project II. P\/ Branch project II. 2312122 ΚZ 4 0P+4C+0L PV Michael Valášek 2322122 **Branch Project II.** ΚZ 0P+4C+0L Branch project II. 2332122 0P+4C+0L ΚZ 4 PV Aleš Herman 2342122 ΚZ 4 0P+4C+0L PV Branch Project II. Branch Project II. ΚZ 2352122 4 0P+4C+0L P\/ Vladimír Andrlík **Branch Project II.** Jan Halama, Ivana Linkeová, Marta Hlavová, Vladimír Prokop, Ji í Holman, 2012122 K7 0P+4C+0L 4 PV Lud k Beneš, Jan Valášek, Tomáš Bodnár, Tomáš Neustupa, Ji í Fürst

Characteristics of the courses of this group of Study Plan: Code=06Q1/B2342--/FSI19P Name=6. B TZSI - Oborový projekt II.

2382122	Branch Project II.	KZ	4		
2372122	Branch Project II.	KZ	4		
Individual preparation for a future bachelor thesis. Main task is a research of problematics, preparation of experiments, introduction on equipment, data collection etc. As a result,					
student prepares a short	t report about his advances in the work.				
2022122	Branch Project II.	KZ	4		
The conception of the subject is on an individual base the topics are related to the professional profile of students. Students are guided to the application of possessed knowledge in					
The conception of the c	ubject is on an individual base the topics are related to the professional profile of students. Students are guided to the applic	alion of possesse	a knowledge in		
	em together with an individual approach. The achieved results are presented in the end of semester, if they are supposed to	•	· ·		

2122122	Branch Project II.	KZ	4
2132122	Branch Project II.	KZ	4
2152122	Branch Project II.	KZ	4
Design, construction	on, project of a simple facility, device, machine, etc., from the field of compressors, cooling techniques, thermal insulation	٦.	•
2162122	Branch Project II.	KZ	4
Project, dimensioni	ing and designing solution of basic elements for heating, ventilation and air conditioning plants, devices for air pollution co	ontrol, air feed and systems	with recoverable
source of heat.			
2182122	Branch Project II.	KZ	4
	iction to selected technologies of process technology with a subsequent excursion. The work on a semester project focus	ed on the issue of machine	s and apparatus
	ical, processing and ecology industries.		
2212122	Branch Project II.	KZ	4
<u> </u>	solution of design task based on industry requirements.		
2222122	Branch Project II.	KZ	4
	Branch Froject II.	112	
The Branch Project	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the u	niversity. The content is a s	tructural design
The Branch Project of a selected part of	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the	niversity. The content is a s	tructural design
The Branch Project of a selected part of	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the u	niversity. The content is a s	tructural design
The Branch Project of a selected part of	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the	niversity. The content is a s	tructural design
The Branch Project of a selected part or of experiment on de	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the upf the airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution	niversity. The content is a s	structural design
The Branch Project of a selected part or of experiment on de 2242122	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the upfit the airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II.	niversity. The content is a see stress analysis, proposition	tructural design on and execution
The Branch Project of a selected part or of experiment on de 2242122 2312122	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the upfit the airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II. Branch project II.	niversity. The content is a see stress analysis, proposition KZ KZ	tructural design on and execution
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the upfit the airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II. Branch Project II. Branch Project III.	niversity. The content is a set e stress analysis, proposition KZ KZ KZ KZ	tructural design on and execution 4 4 4
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2332122	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II.	niversity. The content is a set estress analysis, proposition KZ KZ KZ KZ KZ KZ KZ K	tructural design on and execution 4 4 4 4
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2332122 2342122	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II.	niversity. The content is a set estress analysis, proposition KZ KZ KZ KZ KZ KZ KZ K	tructural design on and execution 4 4 4 4
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2342122 Work on specializer 2352122	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II.	niversity. The content is a see stress analysis, proposition KZ KZ KZ KZ KZ KZ KZ KZ KZ	tructural design on and execution 4 4 4 4 4 4 4
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2342122 Work on specialized 2352122 The course is focus	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II.	niversity. The content is a set estress analysis, proposition KZ KZ KZ KZ KZ KZ KZ KZ KZ	tructural design on and execution 4 4 4 4 4 vith the problems
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2342122 Work on specialized 2352122 The course is focus of manufacturing m	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II. Bod tasks. Branch Project II.	niversity. The content is a set estress analysis, proposition of the stress analysis and stress and stress and stress and stress analysis and stress analysis and stress and stress analysis and stress and stress and stress and stress analysis and stress and stress and st	tructural design on and execution 4 4 4 4 4 vith the problems visor proceed in
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2342122 Work on specialized 2352122 The course is focus of manufacturing m	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II. ad tasks. Branch Project II. sed on elaboration of individual work, which student solves in close cooperation with the head of the assigned topic. The standshines and the equipment, respectively its parts according to the orientation of their work, and during regular weekly contact in the structure included the second property is parts according to the orientation of their work, and during regular weekly contact in the structure included the second property is parts according to the orientation of their work, and during regular weekly contact in the structure included the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work.	niversity. The content is a set estress analysis, proposition of the stress analysis and stress and stress and stress and stress analysis and stress analysis and stress and stress analysis and stress and stress and stress and stress analysis and stress and stress and st	tructural design on and execution 4 4 4 4 4 vith the problems visor proceed in
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2342122 Work on specialized 2352122 The course is focus of manufacturing multiple professional solution of a selected part of the selecte	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II. ad tasks. Branch Project II. sed on elaboration of individual work, which student solves in close cooperation with the head of the assigned topic. The standshines and the equipment, respectively its parts according to the orientation of their work, and during regular weekly contact in the structure included the second property is parts according to the orientation of their work, and during regular weekly contact in the structure included the second property is parts according to the orientation of their work, and during regular weekly contact in the structure included the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work, and during regular weekly contact in the second property is parts according to the orientation of their work.	niversity. The content is a set estress analysis, proposition of the stress analysis and stress and stress and stress and stress analysis and stress analysis and stress and stress analysis and stress and stress and stress and stress analysis and stress and stress and st	tructural design on and execution 4 4 4 4 4 vith the problems visor proceed in
The Branch Project of a selected part of experiment on de 2242122 2312122 2322122 2342122 Work on specialized 2352122 The course is focus of manufacturing m professional solution meaning. 2012122 Course consists of	the assignment is largely based on the practical needs of the industry or the research and development objectives of the upfithe airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the designed part of structure (if required). The conclusion is a technical report describing the proposed solution Branch Project II. sed tasks. Branch Project II. sed on elaboration of individual work, which student solves in close cooperation with the head of the assigned topic. The standardness and the equipment, respectively its parts according to the orientation of their work, and during regular weekly con of the problem. At the end of the semester students present their work on small oral examination in which they present	niversity. The content is a set estress analysis, proposition of the stress analysis and stress analysis a	tructural design on and execution 4 4 4 4 4 vith the problems visor proceed in coherence and

Code of the group: 06Q2/B2342--/FSI19P

Name of the group: 6. B TZSI - Bakalá ská práce

Requirement credits in the group: In this group you have to gain 8 credits

Requirement courses in the group: In this group you have to complete at least 1 course (at most 18)

Credits in the group: 8

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
2183992	Bachelor Thesis Vojt ch B Iohlav, Jan Sko ilas, Lukáš Krátký, Jaromír Štancl, Tomáš Jirout, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)	Z	8	0P+8C		PV
2373992	Thesis Vladimír Hlavá Tomáš Vyhlídal (Gar.)	Z	8	0P+8C	*	PV
2383992	Bachelor Thesis	Z	8	0P+2C		PV
2013992	Bachelor Thesis Jan Halama, Ivana Linkeová, Ji í Holman, Lud k Beneš, Gejza Dohnal, Jan Valášek, Tomáš Bodnár, Tomáš Neustupa, Marek Pátý, Ji í Fürst (Gar.)	Z	8	0P+8C	*	PV
2023992	Bachelor Thesis Zuzana Budinská	Z	8	0P+8C		PV
2113992	Bachelor Thesis Tomáš Mareš	Z	8	0P+8C		PV
2313992	Bachelor Thesis Michael Valášek	Z	8	0P+8C		PV
2133992	Bachelor Thesis Eliška Cézová František Lopot	Z	8	0P+8C		PV
2153992	Bachelor thesis Vojt ch Smolík Jan Št pánek	Z	8	0P+8C		PV
2163992	Bachelor Thesis Vladimír Zmrhal Vladimír Zmrhal (Gar.)	Z	8	0P+8C	6	PV
2213992	Bachelor Thesis Petr Hatschbach Old ich Vítek (Gar.)	Z	8	0P+8C	*	PV
2223992	Thesis Milan Dvo ák (Gar.)	Z	8	0P+8C		PV
2243992	Bachelor Thesis	Z	8	0P+8C		PV
2323992	Bachelor thesis Jana Sobotová	Z	8	0P+8C		PV

2333992	Bachelor thesis Ladislav Kola ík, Aleš Herman, František Tatí ek, Ji í Kucha , Bohumír Bedná , Barbora Bryksí Stunová, Jan ermák, Jaroslav ervený, Marie Kola íková, Ladislav Kola ík Ladislav Kola ík (Gar.)	Z	8	0P+8C	PV
2343992	Thesis Jan Podaný (Gar.)	Z	8	0P+8C	PV
2353992	Bachelor Thesis Vladimír Andrlík	Z	8	0P+8C+0L	PV
2123992	Thesis, Department of Fluid Dynamics and Thermodynamics	Z	8	0P+8C	PV

Characteristics of the courses of this group of Study Plan: Code=06Q2/B2342--/FSI19P Name=6. B TZSI - Bakalá ská práce

2183992	Bachelor Thesis	Z	8
2373992	Thesis	Z	8
Each student will s	solve his individual theme under guiding of his individual supervising department specialist. Result is hi	s/her bachelor thesis.	l
2383992	Bachelor Thesis	Z	8
2013992	Bachelor Thesis	Z	8
2023992	Bachelor Thesis	Z	8
The aim of the sub	bject is to inform students with all general rules of final thesis formation and due to the regular consulta	tions with own thesis supervisor to continue i	n professional
olution of a given	n problem and on preparation of the own text of final thesis. Individual and active approach of students i	s expected.	
2113992	Bachelor Thesis	Z	8
2313992	Bachelor Thesis	Z	8
2133992	Bachelor Thesis	Z	8
153992	Bachelor thesis	Z	8
achelor thesis is	s final individual work. This work checks ability of logical independent technical thinking and treatment w	rith technical materials. There is applied acqu	ired knowledge
om previous stud	dy periods.		· ·
2163992	Bachelor Thesis	Z	8
	s final individual work. This work checks ability of logical independent technical thinking and treatment v	vith technical materials. There is applied acqu	ired knowledge
rom previous stud	dy periods.	viii teerinea materiais. There is applied acqu	anca knowleage
	dy periods. Bachelor Thesis	Z	8
213992			
213992	Bachelor Thesis	Z Z	8 8
	Bachelor Thesis Thesis	Z c objectives of the university. The content is a	8 8 structural desig
2213992 2223992 The Bachelor The	Bachelor Thesis Thesis esis assignment is largely based on the practical needs of the industry or the research and development	be objectives of the university. The content is a the loading and the stress analysis, proposition	8 8 structural design
213992 223992 he Bachelor The f a selected part of f the experiment	Bachelor Thesis Thesis esis assignment is largely based on the practical needs of the industry or the research and development of the airplane structure including the creation of a 3D model of the designed structure, determination of	be objectives of the university. The content is a the loading and the stress analysis, proposition	8 8 structural design
213992 223992 he Bachelor The f a selected part of the experiment 243992	Bachelor Thesis Thesis esis assignment is largely based on the practical needs of the industry or the research and development of the airplane structure including the creation of a 3D model of the designed structure, determination of the with designed part of structure under the leadership of consultants and supervisors of the work (if required).	Department of the university. The content is a the loading and the stress analysis, proposition of the bachelor work.	8 8 structural design
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Name of the block: Jazyky

Minimal number of credits of the block: 2

The role of the block: J

Code of the group: 04J2/B2342--/FSI15P

Name of the group: 4. B TZSI

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 at least 1 course (at most 5)

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, Michael Le Blanc Ilona Šimice (Gar.)	Z,ZK	2	0P+2C	*	J
2041063	French - Bachelor Exam /FME Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	J
2041062	German - Bachelor Exam / FME Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z,ZK	2	0P+2C	*	J

2041065	Russian - Bachelor Exam / FME Hana Volejníková, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	J
2041064	Spanish - Bachelor Exam / FME Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z,ZK	2	0P+2C	*	J

Characteristics of the courses of this group of Study Plan: Code=04J2/B2342--/FSI15P Name=4, B TZSI

Characteristics of	the courses of this group of Study Plan: Code=04J2/62342/F3113P Name=4. 6 1231					
2041061	English-Bachelor Exam	Z,ZK	2			
Mapped to the Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	iculties, to take pa	rt in discussions,			
to write a summary, a re	eport and an essay, to read technical texts, to master grammar at advanced level.					
2041063	French - Bachelor Exam /FME	Z,ZK	2			
Mapped to the Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	iculties, to take pa	rt in discussions,			
to write a summary, a re	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 Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	iculties, to take pa	rt in discussions,			
to write a summary, a re	eport and an essay, to read technical texts, to master grammar at advanced level.					
2041065	Russian - Bachelor Exam / FME	Z,ZK	2			
Mapped to the Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	iculties, to take pa	rt in discussions,			
to write a summary, a re	eport and an essay, to read technical texts, to master grammar at advanced level.					
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2			
Mapped to the Common	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 re	eport and an essay, to read technical texts, to master grammar at advanced level.					

List of courses of this pass:

Code	Name of the course	Completion	Credits
2011009	Mathematics III	Z,ZK	5
	An introductory course in ordinary differential equation and infinite series.		•
2011018	Constructive Geometry	Z,ZK	5
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relati	ons.	
2011067	Mathematics I.	Z,ZK	6
In the course, grea	ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection	ns between concep	ts. Studen
will also get to know	v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas:	eigennumbers and e	eigenvecto
	of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.		
2011068	Mathematics II.	Z,ZK	6
•	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,		
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree	•	
field, 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 vector	or field through a su	urface. The
	Gauss-Ostrogradskij theorem.		
2011715	Mathematical Modeling in Technical Applications	Z,ZK	3
	thematic models for basic engineering problems. Basic principles of solution by means of mathematical modeling, numerical mather		-
This course will intr	roduce finite difference, finite volume and finite element methods including different topology of domain discretization (meshes). Num	erical simulations w	ill be aime
	at the solution of engineering problems of continuum mechanics.		
2012035	Algorithmization and Programming Fundamentals	KZ	4
	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat		•
	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. S		
	s: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of		
2012122	Branch Project II.	KZ	4
Course consists of	f individual assignment. Student works under the guidance of supervisor. Regular meetings with supervisor are supposed each week	of semestr. Stude	nt prepare
	the written report describing methods and results.	_	
2013044	Mathematics Repetitory	Z	2
Lessons are inten	ded for students who expect problems at exams from mathematics. Lessons have a form of seminary with a short introduction to the	ory and a variety o	f exercise:
	ranging sometimes even from level of grammar school and aimed mainly to Mathematics I and III.		
2013066	Basics of Stochastics	Z	2
	n the basics of probability theory (random experiment, probability, random variable, probability distribution, characteristics of random	• •	•
	n variable and its characteristics, laws of large numbers and limit theorems) and the basic principles of statistical inference (frequency		
	g, regression analysis and more). The application of this knowledge we can found in all areas where it is necessary to evaluate the respective of the control of the contro		
parameter estimat	ion based on measurements, application of stochastic simulation methods, prediction of random processes and time series assessn	nent. Also importan	t is the us
	of these methods for the control of quality, reliability and risk assessment.	_	_
2013992	Bachelor Thesis	Z	8
2021014	Physics - Selected Topics	Z,ZK	3
The subject gives s	tudents a deeper and wider knowledge of selected parts of fundamental physics courses with respect to usage of physical phenomer		
,	Addented a deeper and wider knowledge of eclected parts of furndamental physics sources with respect to deage of physical phonomics	na in technological	applicatio
(for example laser	rs, electron beams, roentgen diffraction, thermophysical properties of matter). Students can achieve and deepen their knowledge in s	olid state physics,	liquids an
(for example laser		olid state physics,	liquids ar

in Mechanical Engineering.

2021026	Physics I	Z.ZK	5
	of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic prog	,	_
waves. Fluid mechanics	s. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Con Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirec	ductors, semicor	nductors,
isulators. Magnetic field.	measurement of experiments related to the lectures.	i measurements,	regression,
2021027	Physics II	Z,ZK	4
araday's law of electromag	gnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elect	romagnetic wave	s. Interaction
of radiation with matter. P	hotoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and p	periodic system o	f elements.
pectra, x-rays, ;laser. Ban	nd theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experi	ments related to	the lectures
2022122	Branch Project II.	KZ	4
The conception of the sub	ject is on an individual base the topics are related to the professional profile of students. Students are guided to the application	n of possessed ki	nowledge in
<u> </u>	em together with an individual approach. The achieved results are presented in the end of semester, if they are supposed to be	e a part of bache	lor thesis.
2023012	Practical Class in Physics II	Z	2
	students who need more detailed practising and improvement (including knowledge from former physics coursess, or high-sch		
uccessful finishing Physic	is II course. The instructions are analogical to seminars with a short corresponding theoretical background. The link between ph	ysical concepts a	and methods
	of solution of typical problems is underlying.		
2023013	Practical Class in Physics I	Z	2
•	students who need more detailed practising and improvement (including knowledge from former physics coursess, or high-sch	• ,	
uccessful finishing Physic	es I course. The instructions are analogical to seminars with a short corresponding theoretical background. The link between ph	ysicai concepts a	ana metnoas
2022002	of solution of typical problems is underlying.	7	
2023992	Bachelor Thesis	Z	8
	to inform students with all general rules of final thesis formation and due to the regular consultations with own thesis supervise		rotessional
	olution of a given problem and on preparation of the own text of final thesis. Individual and active approach of students is expec		
2041061	English-Bachelor Exam	Z,ZK	2
apped to the Common Et	uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	es, to take part in	uiscussions
0044000		7 71/	
2041062	German - Bachelor Exam / FME	Z,ZK	2
iapped to the Common Et	uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary or capet and an except to read technical toylor to meeter growing at advanced level	es, to take part in	discussions
2044002	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	7 71/	
2041063	French - Bachelor Exam /FME	Z,ZK	2
apped to the Common Et	uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	es, to take part in	uiscussions
2041064		7 71/	
	Spanish - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti	Z,ZK	2
		on to take part in	
lapped to the Common Eu		es, 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	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME	Z,ZK	2
2041065	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultions.	Z,ZK	2
2041065 fapped to the Common Eu	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	Z,ZK es, to take part in	2 discussions
2041065 Mapped to the Common Eu	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultive to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II	Z,ZK es, to take part in Z,ZK	2 discussions
2041065 Mapped to the Common Eu 2111103 This course is to provid	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultive to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory	Z,ZK es, to take part in Z,ZK of elasticity and	2 discussions 5 plasticity.
2041065 Mapped to the Common Eu 2111103 This course is to provid 2112122	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II.	Z,ZK es, to take part in Z,ZK of elasticity and KZ	2 discussions 5 plasticity. 4
2041065 tapped to the Common Eu 2111103 This course is to provide 2112122 2113992	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II. Bachelor Thesis	Z,ZK es, to take part in Z,ZK of elasticity and KZ Z	2 discussions 5 plasticity. 4
2041065 lapped to the Common Eu 2111103 This course is to provid 2112122 2113992 2121046	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II. Bachelor Thesis Thermomechanics	Z,ZK es, to take part in Z,ZK of elasticity and KZ Z Z,ZK	2 discussions 5 plasticity. 4 8
2041065 dapped to the Common Eu 2111103 This course is to provid 2112122 2113992 2121046 dasic laws of thermodynan	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME uropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II. Bachelor Thesis Thermomechanics nics. State equation of ideal gas. Ideal and semi-ideal gases and their properties. Reversible and typical irreversible processes of	Z,ZK es, to take part in Z,ZK of elasticity and KZ Z Z,ZK of ideal and semi-	2 discussions 5 plasticity. 4 8 5 ideal gases
2041065 lapped to the Common Eu 2111103 This course is to provid 2112122 2113992 2121046 lasic laws of thermodynan Mixtures of gases. Real	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME propean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II. Bachelor Thesis Thermomechanics nics. State equation of ideal gas. Ideal and semi-ideal gases and their properties. Reversible and typical irreversible processes of gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of control of the summary of	Z,ZK es, to take part in Z,ZK of elasticity and KZ Z Z,ZK of ideal and semi-	2 discussions 5 plasticity. 4 8 5 ideal gases dynamics.
2041065 lapped to the Common Eu 2111103 This course is to provid 2112122 2113992 2121046 lasic laws of thermodynan Mixtures of gases. Real	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME propean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultion to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II. Bachelor Thesis Thermomechanics nics. State equation of ideal gas. Ideal and semi-ideal gases and their properties. Reversible and typical irreversible processes of gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of concerning the transfer. Steady heat conduction. Heat convection. Similarity, a criterion equation. Heat transfer.	Z,ZK es, to take part in Z,ZK of elasticity and KZ Z Z,ZK of ideal and semi-	2 discussions 5 plasticity. 4 8 5 ideal gases dynamics.
2041065 lapped to the Common Eu 2111103 This course is to provid 2112122 2113992 2121046 lasic laws of thermodynan Mixtures of gases. Real Thermodynamics of chen	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME propean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulting to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II. Bachelor Thesis Thermomechanics nics. State equation of ideal gas. Ideal and semi-ideal gases and their properties. Reversible and typical irreversible processes of gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of concerning the theory gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of concerning the theory gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of concerning the theory gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of concerning the theory gases are the processes of heat transfer. Steady heat conduction. Heat convection. Similarity, a criterion equation. Heat transfer. Thermal radiation. Combined cases of heat transfer. Heat exchangers.	Z,ZK es, to take part in Z,ZK of elasticity and KZ Z Z,ZK of ideal and semi- chemical thermod ssfer during phas	2 discussions 5 plasticity. 4 8 5 ideal gases dynamics. e changes.
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2041065 //apped to the Common Euclidean State 2111103	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Russian - Bachelor Exam / FME Irropean Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficultive to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Strenght of Materials II e an advanced analysis of machine members. It also provides the prerequisite for other special courses concerning the theory Branch Project II. Bachelor Thesis Thermomechanics nics. State equation of ideal gas. Ideal and semi-ideal gases and their properties. Reversible and typical irreversible processes or gases and vapours, reversible and irreversible processes. Cycles of typical motors and machines. Moist air. Fundamentals of onical reactions. Basic cases of heat transfer. Steady heat conduction. Heat convection. Similarity, a criterion equation. Heat transfer. Heat exchangers. Hydro a Thermodynamics Fluid Dynamics Branch Project II. Thesis, Department of Fluid Dynamics and Thermodynamics Machine Elements and Mechanisms II calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, provided and provided and machines and Mechanisms I. s (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, key or drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, prebaded points between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly assembly unit (draft drawing, detail drawing, assembly drawing, technical report) Engineering Design III. Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	Z,ZK es, to take part in Z,ZK of elasticity and KZ Z Z,ZK of ideal and semi- chemical thermoo asfer during phas Z,ZK Z,ZK KZ Z ZK ipelines and their Z,ZK z,ZK ipelines and their Z,ZK Z,ZK XS). Mechanical tr connecting bolts, bly units is also in KZ Z Z Z	2 discussions, 5 plasticity. 4 8 5 5 ideal gases. dynamics. e changes. 4 8 3 accessories 4 6 6 ansmissions clamped, dispensable 3 4 2 2

	,		
2141504	Electric Circuits and Electronics	Z,ZK	4
	heory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer		
introduction into	amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprod		perational
2141505	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. Synchronic	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character Low-voltage distribution system.	istic. Low-voitage	instruments.
2151705	Renewables energy sources	Z,ZK	4
	with overview of the currently used renewable energy sources. In a wider context, it concerns with their domestic as well as world-wide	'	1 -
	ssible impacts on the environment. The course discusses in deeper details some of them, especially are emphasized the source havir		
Czech Republic	c this is mostly hydropower, wind energy, solar energy and energy from biomass. Other renewable energy sources are to a smaller ext geothermal energy, tidal energy, etc.	ent discussed as	well, e.g.
2152122	Branch Project II.	KZ	4
2102122	Design, construction, project of a simple facility, device, machine, etc., from the field of compressors, cooling techniques, thermal in		' '
2153005	Fundamentals of Energy Conversions	Z	1
2153992	Bachelor thesis	Z	8
Bachelor thesis is	final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There is	applied acquired	knowledge
24.04.020	from previous study periods.	7.71/	
2161022	Environmental Engineering Application of a theory in environmental engineering	Z,ZK	4
2162122	Branch Project II.	KZ	4
	ing and designing solution of basic elements for heating, ventilation and air conditioning plants, devices for air pollution control, air feed		1
	source of heat.		
2163992	Bachelor Thesis	Z	8
Bachelor Thesis is	final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There is from previous study periods.	s applied acquired	d knowledge
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
	transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical	,	_
time distributions in	n continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and ther	mal radiation. Mul	ticomponent
0404405	systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	7 71/	
2181125	Process equipment and production lines	Z,ZK KZ	3
2182019 General chemist	Chemistry ry 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.		
2182122	Branch Project II.	KZ	4
i neoreticai introdu	action to selected technologies of process technology with a subsequent excursion. The work on a semester project focused on the issues for the food, chemical, processing and ecology industries.	Je of machines an	nd apparatus
2183014	Progressive Processes of Energy Utilization	Z	2
	ubject is to introduce the fields of study in bachelor study programs "Engineering" and "Theoretical Fundamentals in Mechanical Engineer		1 1
	in Environmental, Power and Process Engineering . In the field of Environmental Engineering, fundamentals of heating, ventilation, co	-	
	rs and protection against dust and noise are presented. As for Power Engineering, heat and electricity production from fossil and rene ations of these energy forms in the industrial and private sectors are discussed. In the field of Process Engineering, technologies, mac		•
	mical industries, pharmacy, biotechnologies and waste treatment technologies are presented. Based on this information, student gets fil		
	during the processing of a brief seminar paper on selected topic, in which she/he is interested in.		
2183992	Bachelor Thesis	Z	8
2211130	Transport Engineering	Z,ZK	4
	sport systems - characteristics, distribution and application vehicles. Characteristics of transport routes and dimensions of vehicles on the acteristics of the vehicles. Analysis of the driving cycle. Internal combustion engines - classification, characteristics, characteristics. Me		- 1
and tradition on an	with a drive mechanism. The function of basic structural units and groups of vehicles.	anodo or power at	anomioolom
2212122	Branch Project II.	KZ	4
	Project training in solution of design task based on industry requirements.		<u>'</u>
2213014	Transportation and Aerospace Technology	Z	2
=	g of ground transportation vehicles, control systems, aircraft structures and propulsions. Selected topics of transportation and aerospa r means of laboratory exercises. Information about possibility of master study and project work at CTU, trainee and internship in reputat		
iii oomiiialo ana bj	and aerospace technology.	no mino, boar m ac	anoportation
2213992	Bachelor Thesis	Z	8
2221221	Aeronautics and Astronautics	Z,ZK	4
	nded as an introductory course in the field of aircraft technology for bachelor students. The course serves as a theoretical support of the street technology for bachelors students. The course serves as a theoretical support of the street technology for bachelors in the street technology for bachelors students.		
	praft technology aimed at aircraft structures, engines and space. The first block is focused on obtaining an overview of aircraft structure production technologies and aircraft systems. The second block introduces the basics of aerodynamics. The follow-up enginer section	•	·
	types of aircraft propulsion units. The space section presents input information inthe field of space technology.		5. _F .00 and
2222122	Branch Project II.	KZ	4
	ct assignment is largely based on the practical needs of the industry or the research and development objectives of the university. The		- 1
or a selected part of	of the airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the stress analy of experiment on designed part of structure (if required). The conclusion is a technical report describing the proposed solution		na execution
	5. 5. portinion on accignica part of calactare (ii requirea). The continuoism is a technical report describing the proposed solution		

2223992	Thesis	Z	8
	is assignment is largely based on the practical needs of the industry or the research and development objectives of the university. The		_
•	f the airplane structure including the creation of a 3D model of the designed structure, determination of the loading and the stress analy speriment with designed part of structure under the leadership of consultants and supervisors of the work (if required). Working out of		
2242122		—	4
2243992	Branch Project II.	KZ Z	
	Bachelor Thesis		8
2311083	Selected Topics of Mechanics and Mechatronics	Z,ZK	4
2311101	Mechanics I.	Z,ZK	4
wechanics i deals v	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sys There are introduced the methods of description of position and motion of particles and rigid bodies.	items with and with	iout inction.
2311107	Mechanics III.	Z,ZK	7
	s with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are desc		
	and solving vibrations of systems.		
2312122	Branch project II.	KZ	4
2313028	Career in Engineering	Z	2
'	The goal is to teach the principles of engineering, tits fundamental concepts, personal profile and career procedure in industrial en	terprize.	
2313040	Introduction into applied mechanics and mechatronics	Z	2
2313992	Bachelor Thesis	Z	8
2321039	Materials Science II.	Z,ZK	4
Fundamentals of m	letallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and th		processing,
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of material	als.	
2321500	Technical Materials I	Z,ZK	4
	ntinuation of the subjects Materials Science I and II and Materials of the 21st Century. Students will become familiar with applications	•	
	s as well as with the material and physical requirements that determine their use. The lectures are complemented by invited talks from		
2322029	Materials Science I.	KZ	3
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in		
2322122			
2323014	Branch Project II.	KZ 7.	2
	Materials of the 21st Century sed on characterization of structural and functional materials, which are currently used in technical practice. Attention is paid to technic	_	_
-	dvanced materials, prediction and own evaluation of their properties. In addition, development trends for individual types of materials	-	i production
2323992	Bachelor thesis	Z	8
2331075	Design Consideration	Z,ZK	4
	n construction, production technology and economic aspects. Product design with regard to casting, forming, welding, machining and	,	-
	is for choosing material and technology. Structural modifications of parts with regard to quality and production possibilities. Use of CN		Ü
2332122	Branch project II.	KZ	4
2333008	Fundamental of Technology I.	Z	2
2333040	Perspective Production in Engineering	Z	2
The subject focus	es on the teaching of advanced engineering technology, modern trends in production management, development of new advanced m	naterials, testing of	materials,
energy production	and presentation of the virtual factory. Classes will be a combination of practical nature of work in laboratories FS, instructional video	os, and tours to the	e high-tech
	material-working.		
2333992	Bachelor thesis	Z	8
2341001	Metrology	Z,ZK	5
	ion into quality control, legal metrology, metrology system. Geometrical quantities metrology. Measurement uncertainty. Primary and seco	-	
in 1, 2, end 3 co	ordinates. Laserinterferometres and their applications. Geometrical surface properties. Form - and position deviations. Surface structuments automatisation.	are - roughness, w	awiness.
2341014	Technology II.	Z,ZK	5
	ormation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor		
	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.		,,
2342122	Branch Project II.	KZ	4
'	Work on specialized tasks.	'	
2343010	Fundamentals of Technology II.	Z	2
Introduction to mac	hining. Principle of cutting process. Working parameters. Cutting tools - general characteristics, geometry, designation and symbols. The	ne basic machining	processes,
their mech	nanics, equipment, conditions, material removal rate determination. The shapes produced, commercial tolerance and surface finish of	tained. Laboratori	
2343040	Manufactory	Z	2
· · · · · · · · · · · · · · · · · · ·	ts three basic competencies profiling the institute - machining, technological design, metrology and quality management systems. The		
	tory exercises and excursions to industrial partners. In this way, students will get acquainted with the activities of the machining group plex CAD / CAM systems, machining tools, conventional but also unconventional machining methods and additive technologies. In the		
	oduced to the principles and methodology for designing production processes and systems using modern methods of production prep	_	_
	uy) and advanced software for production preparation and planning. In the field of technological design with the issue of designing production	•	
	ms. Within metrology and quality management systems, students will then be introduced to modern product quality control technolog	=	-
	nensional and geometric tolerances, surface texture. In the form of professional excursions to industrial companies, students are dem	•	
the above compete	ncies in the product life cycle? marketing, construction, technical preparation of production, engineering production and quality control	. The course will be	e scheduled
00.46000	in 4-hour blocks, once every 14 days due to higher efficiency of teaching within individual teaching blocks and excursions.		
2343992	Thesis Thesis Thesis	Z	8 h and work
Sources or miorma	ation in the field. Databases and corporate literature. Normalization. Search activity. News from the field of engineering technology. Pr in laboratories. The principles of work safety in technological devices. Work on specialized tasks related to the focus of a thes	-	ıı anu WUK
2351094	Production Technology	Z,ZK	4
	chines and equipment contains three basic parts. These are forming machines, machine tools and industrial robots and manipulators		
_	realization of discrete technological processes will be explained, technical parameters, basics of construction of production machines a		

automation of pr	roduction machines and equipment, industrial manipulators and robots, their applications, single-purpose and modular machines, pro	oduction lines. Exa	mples of
	applications of production machines and equipment.		
2352122	Branch Project II.	KZ	4
The course is focused on elaboration of individual work, which student solves in close cooperation with the head of the assigned topic. The student will get acquainted with the problems			
of manufacturing machines and the equipment, respectively its parts according to the orientation of their work, and during regular weekly consultations with the supervisor proceed in			
professional solution of the problem. At the end of the semester students present their work on small oral examination in which they present the work performed, the coherence and			
	meaning.		_
2353041	Practical introduction to production machines	Z	2
	s a practical introduction to production machines including modern CNC technologies and the basics of design considerations of com		
machines. Students will acquire the necessary knowledge of the production cycle of basic types of production machines as well as CNC machining centres, including the design brief,			
technologies and production procedures used and determination of technological conditions. Students will also familiarize themselves with machine operation, possibilities of machine			
and tool adjustmen	t, production proper, testing procedures and product measurement. Basic statistical and operational diagnostic methods of measurem	nent will also be de	monstrated
	(measurements of accuracy, force, noise, vibration, temperature etc.)		
2353992	Bachelor Thesis	Z	8
The course focuses on processing the final thesis within the scope of the assigned topic of the bachelor thesis. The student is acquainted with the general principles of the final thesis			
and during regular weekly consultations with the supervisor proceeds in the professional solution of the assigned problem and at the same time works on the actual text of the final			
	thesis. In the course of the solution, the student completes a small oral presentation where the work in progress is presente	1	
2371110	Industrial Automation	Z,ZK	4
In this course, stud	dents will learn the basic principles of automated systems used in current industrial practice, especially focused on the use of advanc	ed procedures in t	he spirit of
the Industry 4.0 initiative. Specifically, these are PLCs and PLC networks, Distributed Control Systems (DCS) and Distributed Artificial Intelligence (DAI), Robotic Manufacturing Systems			
(RMS), Use of controlled drives, Industrial sensors, Micro machining, Methods of system integration and MES systems, Human Machine Interface (HMI) and SCADA Systems			
(Visualization an	d Data Collection), Databases and cyber security, Data analysis, Machine vision (including optical processing and image preprocess	ing) and Machine	learning.
2372041	Computer Support for Study	KZ	3
The course introduc	ces students into creating technical and professional documents on computers or Web and into realizing technical computations with ti	he use of compute	rs. Students
gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical-based WWW page.			
2372083	Measurement in Engineering	KZ	3
Overview of sens	sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	verification of meas	surement
	instruments.		
2372122	Branch Project II.	KZ	4
	ation for a future bachelor thesis. Main task is a research of problematics, preparation of experiments, introduction on equipment, dat	ı	
	student prepares a short report about his advances in the work.		,
2373040	Robot Control Introduction	Z	2
	ces basic concepts and principles of robotics. Students will use construction kit for design, assemble and programme the robot. This	_	
	students of the second year of the bachelor study. There is no prerequisite for this subject.	,	
2373992	Thesis	Z	8
2070002	Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bache	_	0
2381006	Methods and Tools for Managerial Decisionmaking	Z,ZK	3
	ted to project management approach. During the course are solved cases that respond to practical situations. The cases are stresse	' '	-
on the solving interactions among costs, capacity of resources and the price. And also on the calculation typical kinds of variations and their explanation and the selection of the			
appropriate managerial decision. The students are concerning on the right way of operational budget creation and assessment. The link on the internal company accounting is shown			
appropriate manag	and explain. The computerized models are used by explanation.	company accounting	ig is shown
2204054		7 71/	
2381054	Management and Economics of the Enterprise	Z,ZK	4
The subject is intended to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasoning and to help them understand			
the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience to be able to communicate			
with economists in organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of products and services. Every			
technician will encounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the operating budget. In the field of management, they will learn how to use network analysis in project management. For decision-making			
-	ney will learn basic managenal functions and their content. Furthermore, they will learn now to use network analysis in project management will be purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be	=	on-making
2382122			
	Branch Project II.	KZ	4
2383001	Fundamentals of Law	Z	2
	legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provid		٠ ١
Order, particular sources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is necessary for students to know			
our legal institutions, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws. At the same time the course			
leads students to kr	now some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation	ships and to make	them ready
	to prepare professional presentations and to understand basic structures between law and engineering		_
2383020	Modern Management of Businesses and Projects	Z	2
=	of the course is to introduce students to modern trends and approaches that have emerged in corporate governance in recent years	· · · · · · · · · · · · · · · · · · ·	
course introduces the main technical and technological trends that will significantly transform the industry, its economic, environmental benefits and risks in the near future. The second			
main topic represent information systems for management and planning of business processes and for support of managerial decision-making. Furthermore, the course deals with the			
issue of modern approaches and tools for production management and ends with issues of current trends in project management. The focus of the course is not to provide students			
with a detailed explanation, but to provide a general view of current trends and approaches in key areas of corporate governance. The required depth of individual areas is further			
developed within individual courses in the Master's degree program.			
2383992	Bachelor Thesis	Z	8
TV-1	Physical Education	Z	1
TV-2	Physical Education	7	1

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-10-20, time 12:10.

TVK-L

Physical Education Course