

Study plan

Name of study plan: Stavební inženýrství, obor Konstrukce a dopravní stavby

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Structural and Transportation Engineering

Garantor of the study branch: prof. Ing. Jiří Máca, CSc.

Program of study: Civil Engineering

Type of study: Bachelor full-time

Required credits: 240

Elective courses credits: 0

Sum of credits in the plan: 240

Note on the plan:

Name of the block: Compulsory courses

Minimal number of credits of the block: 207

The role of the block: Z

Code of the group: BJ20130100

Name of the group: Stavební inženýrství, povinné předměty, 1. semestr

Requirement credits in the group: In this group you have to gain at least 28 credits

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

Credits in the group: 28

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
123CH01	Chemistry Jana Nábílková, Martin Keppert, Milena Pavlíková, Jana Neková, Gabriela Šašná, Milena Pavlíková , Milena Pavlíková (Gar.)	Z,ZK	5	3P+1C	Z,L	Z
101KG01	Constructive Geometry Iva Kivková, Iva Malechová, Iva Slámová, Hana Lakomá, Petra Vacková, Jana Šápová, Hana Lakomá , Iva Kivková (Gar.)	Z,ZK	5	2P+2C	Z,L	Z
101MA01	Mathematics 1 Iva Kivková, Iva Malechová, Iva Slámová, Petra Vacková, Jana Šápová, Michal Beneš, Ivana Pultarová, Ondřej Zindulka, Zdeněk Šibrava, Zdeněk Šibrava , Aleš Někvianda (Gar.)	Z,ZK	6	2P+3C	Z,L	Z
105SVAR	Social Sciences and Architecture Pavel Škranc	Z,ZK	6	4P+1C	L,Z	Z
132SM01	Structural Mechanics 1 Michal Polák, Martin Válek, Daniel Rypl, Anna Kurová, Matěj Lepš, Jan Sýkora, Jiří Němek, Hana Sekavová, Jaroslav Topič, Matěj Lepš , Michal Polák (Gar.)	Z,ZK	6	2P+2C	Z,L	Z

Characteristics of the courses of this group of Study Plan: Code=BJ20130100 Name=Stavební inženýrství, povinné předměty, 1. semestr

123CH01	Chemistry	Z,ZK	5	Introduction to general chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Chemistry of building materials - inorganic binders, glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materials and to analytical chemistry.
101KG01	Constructive Geometry	Z,ZK	5	
101MA01	Mathematics 1	Z,ZK	6	
105SVAR	Social Sciences and Architecture	Z,ZK	6	Subject introduces the fundamental principles of several social sciences: Economics, Economic Policy, Political Science and Law with an overview of architectural development. Economic section offers an introduction to market economy, economic policy and international economy. Lectures and seminars dedicated to Political Science explain Theory of state, political systems, democracy and totalitarianism. Law section comprises brief overview of development of Roman law with interpretation of the Constitution, Labor Code and Civil Code.
132SM01	Structural Mechanics 1	Z,ZK	6	Concurrent forces, force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction forces. Compound two-dimensional structures. Trusses. Reaction forces applying the principle of virtual work.

Code of the group: BJ20130200

Name of the group: Stavební inženýrství, povinné předměty, 2. semestr

Requirement credits in the group: In this group you have to gain 28 credits

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

Credits in the group: 28

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
102FY01	Physics Pavel Demo	Z,ZK	5	3P+1C	Z,L	z
101MA02	Mathematics 2 Iva Kivková, Iva Malechová, Iva Slámová, Hana Lakomá, Jana ápová, Ivana Pultarová, Ondřej Zindulka, Petr Kuera, Aleš Nekvinda, Zdeněk Skalák Ivana Pultarová (Gar.)	Z,ZK	6	2P+3C	L,Z	z
154SG01	Land Surveying in Civil Engineering Rudolf Urban, Tomáš Kremen Rudolf Urban Rudolf Urban (Gar.)	Z,ZK	6	2P+3C	Z,L	z
123SH01	Building Materials Eva Vejmelková, Alena Vimmrová, Miloš Jerman Miloš Jerman Alena Vimmrová (Gar.)	Z,ZK	5	2P+2C	Z,L	z
132SM02	Structural Mechanics 2 Michal Polák, Martin Válek, Daniel Rypl, Anna Kučerová, Matěj Lepš, Jan Sýkora, Jiří Němek, Hana Sekavová, Jitka Němčková, Matěj Lepš Michal Polák (Gar.)	Z,ZK	6	2P+2C	L,Z	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130200 Name=Stavební inženýrství, povinné předměty, 2. semestr

102FY01	Physics	Z,ZK	5	Mass, structure of matter. Motion of matter, kinematics, dynamics. Force field. Deformations and leak. Oscillations, elastic waves, acoustics. Heat properties of matter.
101MA02	Mathematics 2	Z,ZK	6	
154SG01	Land Surveying in Civil Engineering	Z,ZK	6	The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic
123SH01	Building Materials	Z,ZK	5	Building materials - basis course. Classification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.
132SM02	Structural Mechanics 2	Z,ZK	6	Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.

Code of the group: BJ20130300

Name of the group: Stavební inženýrství, povinné předměty, 3. semestr

Requirement credits in the group: In this group you have to gain 30 credits

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

Credits in the group: 30

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
136DSUP	Transport Structures and Urban Planning Ludvík Věbr, Martin Lidmila, Ivan Vorel, Václav Jetel, František Pospíšil František Pospíšil Ludvík Věbr (Gar.)	Z,ZK	6	5P+1C	L,Z	z
126EKMN	Economics and Management Petr Kal ev, Jiří Novák, Eduard Hromada, Aleš Tomek, Daniel Macek, Petr Matějka, Renáta Schneiderová Heralová, Vladimíra Nováková, Božena Kadeřáková Petr Kal ev Petr Kal ev (Gar.)	Z,ZK	7	4P+2C		z
141HYA	Hydraulics Ivana Marešová, Daniel Mattas, Tomáš Píček, Václav Matoušek, Jaroslav Pastorek, Petra Podešvová, Lukáš Svoboda, Vojtěch Bareš, Dalibor Šulc, Václav Matoušek	Z,ZK	5	2P+2C	Z,L	z
101MA03	Mathematics 3 Iva Malechová, Michal Beneš, Ivana Pultarová, Ondřej Zindulka, Petr Kuera, Aleš Nekvinda, Martin Hála, Martin Soukenka, Monika Rencová, Michal Beneš Michal Beneš (Gar.)	Z,ZK	6	3P+2C	Z,L	z
132PRPE	Strength of Materials Pavel Těsárek, Tomáš Janda, Tomáš Koudelka, Vladimír Hrbek, Zdeněk Prošek, Milan Jirásek, Michal Šejnoha, Petr Kabele, Pavel Kuklík, Milan Jirásek	Z,ZK	6	3P+2C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130300 Name=Stavební inženýrství, povinné předměty, 3. semestr

136DSUP	Transport Structures and Urban Planning	Z,ZK	6
126EKMN	Economics and Management	Z,ZK	7

141HYA	Hydraulics	Z,ZK	5
Physical properties of water. Hydrostatics - pressure in a gravitational field, applications of the Pascal's law (hydraulic jack), hydrostatic forces, loading of construction by liquids, buoyancy force. Basics of hydrodynamics - characteristics, regimes and types of water flow, hydraulic resistance, application of basic equations. Pressure flow in pipes - energy losses due to friction, minor losses, simple cases of pipe computations, pipe systems with pump, formation of a water hammer. Steady flow in open channels - uniform flow, hydraulic design of a channel, critical flow, longitudinal profiles of water level. Hydraulics of structures - outflow from an orifice and from a pipe system, flow through culverts and bridge openings. Forces due to water in motion. Water flow measurement. Groundwater flow - types, effects, filtration law, solving of a seepage.			
101MA03	Mathematics 3	Z,ZK	6
132PRPE	Strength of Materials	Z,ZK	6

Code of the group: BJ20130400

Name of the group: Stavební inženýrství, povinné p edm ty, 4. semestr

Requirement credits in the group: In this group you have to gain 30 credits

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

Credits in the group: 30

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
135GEMZ	Geology and soil mechanics Ivan Vaní ek, Jan Salák, Svatoslav Chamra, Jan Schröfel, Jan Valenta Daniel Jirásko Ivan Vaní ek (Gar.)	Z,ZK	7	4P+2C	Z,L	z
133NNK	Fundamentals of Structural Design Petr Štemberk	Z,ZK	7	4P+2C	L,Z	z
124PS01	Building Structures 1 Petr Hájek, Ji í Pazderka, Jan R ži ka, Ctislav Fiala, Martina Zapletalová, Michal Ženíšek, Tomáš Dobrovolný, Aneta Libecajtová, Jaroslav Vychytil, Ji í Pazderka Petr Hájek (Gar.)	Z,ZK	7	4P+2C	Z,L	z
132SM3	Structural Mechanics 3 Jan Sýkora, Tomáš Plachý, Tomáš Koudelka, Martin Došká , Milan Jirásek, Michal Šejnoha, Petr Kabele, Pavel Kuklík, Eva Novotná, Milan Jirásek	Z,ZK	5	2P+2C	L,Z	z
142VIZP	Water and Environmental Engineering Aleš Havlík, Karel Vrána, Petr Valenta, Petr Nowak, Tomáš Dostál, Martin Do kal, Josef Krása, Adam Vokurka, Martin Šanda, Ladislav Satrapa (Gar.)	Z,ZK	4	3P+1C	Z,L	z

Characteristics of the courses of this group of Study Plan: Code=BJ20130400 Name=Stavební inženýrství, povinné p edm ty, 4. semestr

135GEMZ	Geology and soil mechanics	Z,ZK	7
133NNK	Fundamentals of Structural Design	Z,ZK	7
124PS01	Building Structures 1	Z,ZK	7
132SM3	Structural Mechanics 3	Z,ZK	5
142VIZP	Water and Environmental Engineering	Z,ZK	4

Code of the group: BK20130500

Name of the group: obor Konstrukce a dopravní stavby, 5. semestr

Requirement credits in the group: In this group you have to gain 30 credits

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

Credits in the group: 30

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
132ANKC	Analysis of Structures Dagmar Jandeková, Petr Konvalinka, Aleš Jíra, Radoslav Sovják, Jan Zatloukal Petr Konvalinka	Z,ZK	5	2P+2C	Z	z
133BK01	Concrete and Masonry Structures 1 Jitka Vašková, Martin Típka Petr Bílý Jitka Vašková (Gar.)	Z,ZK	6	3P+2C	Z	z
134OK01	Steel Structures 1 Michal Jandera Michal Jandera Michal Jandera (Gar.)	Z,ZK	6	3P+2C	Z	z
136SS01	Road Structures 1 Ludvík Věbr, Michal Uhlík Ludvík Věbr Ludvík Věbr (Gar.)	Z,ZK	6	3P+2C	Z	z
135ZS01	Foundations 1 Jan Valenta, Ji í Barták, Josef Jettmar, Jan Masopust Jan Valenta Jan Salák (Gar.)	Z,ZK	7	3P+3C	Z	z

Characteristics of the courses of this group of Study Plan: Code=BK20130500 Name=obor Konstrukce a dopravní stavby, 5. semestr

132ANKC	Analysis of Structures	Z,ZK	5
Analyses of statically determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analysis of walls and plates, matrix formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures.			

133BK01	Concrete and Masonry Structures 1	Z,ZK	6
134OK01	Steel Structures 1	Z,ZK	6
The course OK01 aims to expand the knowledge acquired in the subject NNK and concerning design of basic steel structures. In the theoretical part are delivered possibilities of global analysis of structures including classification from view of necessities of nonlinear analyses. Design of steel elements is widen for global analysis methods, advanced composite steel and concrete beams/columns and cold-formed thin-walled elements. The main part of the subject deals with complex design of multi-storey steel buildings and steel industrial halls. Final lectures concern large-span structures, uniqueness in design of tall buildings, including effects of seismicity.			
136SS01	Road Structures 1	Z,ZK	6
135ZS01	Foundations 1	Z,ZK	7

Code of the group: BK20130600

Name of the group: obor Konstrukce a dopravní stavby, 6. semestr

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 at least 5 courses

Credits in the group: 29

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
132DY01	Dynamics of structures 1 Karel Pohl, Tomáš Krejčí, Jiří Máca Jiří Máca Jiří Máca (Gar.)	Z,ZK	5	2P+2C	L	z
133BK02	Concrete and Masonry Structures 2 Jitka Vašková, Iva Broukalová, Michal Drahorád, Marek Foglar, Radek Hájek Marek Foglar Jitka Vašková (Gar.)	Z,ZK	7	4P+2C	L	z
134DK01	Timber Structures 1 Petr Kuklík, Anna Kuklíková Jakub Dolejš Petr Kuklík (Gar.)	Z,ZK	5	3P+1C	L	z
136SS02	Road construction 2 Ludvík Vébr, Petr Mondschein, Petr Pánek Petr Mondschein Petr Mondschein (Gar.)	Z,ZK	5	2P+2C	L	z
137ZE01	Railway Structures 1 Martin Lidmila, Hana Krejčíková Petr Běš ovský Hana Krejčíková (Gar.)	Z,ZK	7	4P+2C	L	z

Characteristics of the courses of this group of Study Plan: Code=BK20130600 Name=obor Konstrukce a dopravní stavby, 6. semestr

132DY01	Dynamics of structures 1	Z,ZK	5
Principles of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of dynamic analysis of multi-degree-of-freedom systems.			
133BK02	Concrete and Masonry Structures 2	Z,ZK	7
134DK01	Timber Structures 1	Z,ZK	5
Introduction and presentation of timber structures use in building industry. Wood and wood-based materials properties. Safety of timber structures design, ultimate limit states, valid standards. Cross section design of simple members. Connections of timber structures. Glued joints. Basic structural systems. Fire design. Protection of timber structures.			
136SS02	Road construction 2	Z,ZK	5
Design classification of roads and motorways, design speed, road horizontal alignment and level design, form of road and motorway cross sections, road earthwork - proportions, shapes and design, volume of earthworks, mass-haul diagram, road engineering structures, equipment of roads and motorways, crossroads and intersections. Urban roads, dissimilarities of urban road traffic and construction, function classes and marking of urban road types, traffic place and street place, principles of traffic calming on urban roads.			
137ZE01	Railway Structures 1	Z,ZK	7
Vehicle and track, track construction and geometry, track spatial disposition, research and projection, project documentation, tracing and pegging out of a railway track, railway construction, sub-ballast layers, earth solid and trackbed construction, defect and stability increment of substructure, requirements for soil bearing capacity and soil consolidation, substructure drainage, railway artificial structures			

Code of the group: BK20130700

Name of the group: obor Konstrukce a dopravní stavby, 7. semestr

Requirement credits in the group: In this group you have to gain 23 credits

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

Credits in the group: 23

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
132PRPM	Deformation and Failure of Materials Milan Jirásek, Petr Havlásek, Karel Mikeš Milan Jirásek Milan Jirásek (Gar.)	Z,ZK	5	2P+2C	Z	z
133BM01	Concrete Bridges 1 Roman Šafář Roman Šafář	Z,ZK	7	3P+3C	Z	z
134OCM1	Steel Bridges 1 Pavel Ryjáček Pavel Ryjáček Pavel Ryjáček (Gar.)	Z,ZK	5	3P+1C	Z	z
135PSMH	Underground structures and rock mechanics. Jiří Barták, Matouš Hilar Matouš Hilar Jiří Barták (Gar.)	Z,ZK	6	3P+2C	Z	z

100ODPR	Industrial Training (3 weeks) <i>Petr Hájek, Jan R ži ka Eduard Hromada Michal Jandera (Gar.)</i>	Z	0	6C	Z,L	z
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Characteristics of the courses of this group of Study Plan: Code=BK20130700 Name=obor Konstrukce a dopravní stavby, 7. semestr

132PRPM	Deformation and Failure of Materials Viscoelasticity, models for concrete creep and shrinkage. Theory of plasticity, principles of limit analysis. Fracture mechanics. Damage mechanics.	Z,ZK	5
133BM01	Concrete Bridges 1 The aim of the course is introduction into principles of design of concrete bridge structures. The course includes corresponding problems from terminology, spatial arrangement and loads on bridges up to design of various types of concrete bridge structures and technology of their construction.	Z,ZK	7
134OCM1	Steel Bridges 1 This course includes basic problems of design of steel and composite steel - concrete road and railway bridges	Z,ZK	5
135PSMH	Underground structures and rock mechanics. Geotechnical investigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in rock mechanics and underground construction, tunnelling methods (drill and blast, SEM, TBM), technology of underground constructions	Z,ZK	6
100ODPR	Industrial Training (3 weeks)	Z	0

Code of the group: BK20130800

Name of the group: obor Konstrukce a dopravní stavby, 8. semestr

Requirement credits in the group: In this group you have to gain 9 credits

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

Credits in the group: 9

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
126STMN	Building Management <i>Renáta Schneiderová Heralová, Jaroslava Tománková, Dana M š anová, Zita Prost jovská Martin ásenský Dana M š anová (Gar.)</i>	Z,ZK	6	3P+2C	Z,L	z
122TDS	Technology of Traffic Buildings <i>Jaroslav Synek, Rostislav Šulc Rostislav Šulc Rostislav Šulc (Gar.)</i>	ZK	3	2P	L	z

Characteristics of the courses of this group of Study Plan: Code=BK20130800 Name=obor Konstrukce a dopravní stavby, 8. semestr

126STMN	Building Management Compendium of basic concepts and Project Management context. Methods for proceeding support. Legal rules, SN and ISO specifications. Basic aspects of Project Management. Construction as a product of Build - up Project. Purposes, strategies, stages and surround of Build - up Project. Status of Project Manager. Purchases and treaties in Project. Quality Management, Risk Management. Financial Management and Project Assessment. Feasibility Study. Project Management in light of time, sources and costs. Claim Management. Territorial planning and construction code law, public procurement law, definition of terms. Commercial contractual relationships, making a contract, forms of contracts, usage of general terms and conditions utilization. Public tender and its impact on the liabilities of the participants. Securing of a liability - penalty, guarantee. Main contract types in construction - contract of the conclusion of a future contract, purchase contract, contract for work, Contents of the contract.	Z,ZK	6
122TDS	Technology of Traffic Buildings	ZK	3

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 6

The role of the block: PV

Code of the group: BK20140800_1

Name of the group: obor Konstrukce a dopravní stavby, povinn volitelné p edm ty, 8. semestr

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

Requirement courses in the group:

Credits in the group: 6

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
123YTMV	Production technology of building materials <i>Eva Vejmelková, Ond ej Hol apek Milan Myška Eva Vejmelková (Gar.)</i>	Z	2	1P+1C	L	PV
126YVSF	Small Business Management <i>Jana Frková Eduard Hromada Jana Frková (Gar.)</i>	Z	2	1P+1C	Z	PV
132YMMO	Modern Methods of Optimization <i>Mat j Lepš, Jan Zeman, Adéla Hlobilová Jan Zeman</i>	Z	2	1P+1C	Z	PV
132YPV1	Programming in C++ for Engineering Calculations 1 <i>Anna Ku erová, Tomáš Koudelka, Stanislav Šulc Anna Ku erová Tomáš Koudelka (Gar.)</i>	Z	2	1P+1C	Z	PV
132YNMI	Numerical Methods in Engineering Practice <i>Petr Kabele, Jan Zeman, Jaroslav Kruiš Milan Jirásek</i>	Z	2	1P+1C	Z	PV

132YPM1	Computer Analysis of Structures 1 <i>Petr Fajman Marie Kalousková Petr Fajman (Gar.)</i>	Z	2	1P+1C	Z,L	PV
133YPRB	Prestressed Concrete <i>Michaela Frantová</i>	Z	2	1P+1C	Z,L	PV
133YPRK	Failures and Rehabilitation of Concrete Structures <i>Petr Štemberk Petr Štemberk</i>	Z	2	1P+1C	Z	PV
133YTB	Technology of Concrete II <i>Josef Fládr, Alena Kohoutková Michaela Frantová</i>	Z	2	1P+1C	Z	PV
133YBKP	Computer design of concrete structures <i>Michal Drahorád Michal Drahorád</i>	Z	2	2C	Z,L	PV
134YMOD	Numerical Modeling of Steel and Timber Structures <i>Karel Mikeš Karel Mikeš Karel Mikeš (Gar.)</i>	Z	2	1P+1C		PV
134YPNK	Fire Resistance of Steel and Timber Structures <i>Zden k Sokol Zden k Sokol Zden k Sokol (Gar.)</i>	Z	2	1P+1C		PV
135YVZK	Computer analysis in foundation engineering <i>Jan Salák, Jan Pruška Daniel Jirásko</i>	Z	2	1P+1C		PV
136YSKL	Building of Roads <i>Ludvík Vébr, Petr Mondschein, Petr Pánek Petr Pánek</i>	Z	2	1P+1C		PV
137YMKK	City Rail Transport <i>Hana Krejčíková Pavel Voříšek</i>	Z	2	1P+1C	Z	PV
123YNTP	Numerical Analysis of Transport Processes <i>Václav Koci, Jiří Madara Jiří Madara (Gar.)</i>	Z	2	1P+1C		PV
132YSHK	Statics and Reconstruction of Historical Structures <i>Petr Fajman Marie Kalousková Petr Fajman (Gar.)</i>	Z	2	1P+1C	L	PV
132YPM2	Computer Analysis of Structures 2 <i>Jiří Máca, Petr Fajman Jiří Máca Petr Fajman (Gar.)</i>	Z	2	1P+1C	L	PV
132YDSK	Diagnostics of Building Structures <i>Michal Polák</i>	Z	2	1P+1C	L	PV
132YMCK	Micromechanics of Cement-Based Composites <i>Vít Šmilauer Vít Šmilauer Vít Šmilauer (Gar.)</i>	Z	2	1P+1C	L	PV
133YBSV	Concretes with Special Properties <i>Jitka Vašková, Michal Števula Michaela Frantová Michal Števula (Gar.)</i>	Z	2	1P+1C	L	PV
133YTBM	Technology of Construction and Reconstructions of Bridge Structures <i>Roman Šafář Michaela Frantová</i>	Z	2	1P+1C	L	PV
133YMBV	Structural Models and Reinforcing of Concrete Members <i>Radek Štefan, Petr Bílý, Josef Novák Petr Bílý Petr Bílý (Gar.)</i>	Z	2	1P+1C	L	PV
133YPNB	Fire design of concrete and masonry structures <i>Radek Štefan, Jaroslav Procházka Michaela Frantová</i>	Z	2	1P+1C	L	PV
134YTSK	Thin-Walled and Composite Structures <i>Michal Jandera Michal Jandera Michal Jandera (Gar.)</i>	Z	2	1P+1C	L	PV
134YOM2	Steel Bridges 2 <i>Pavel Ryjáček Pavel Ryjáček Pavel Ryjáček (Gar.)</i>	Z	2	1P+1C	L	PV
134YDUV	Timber and Sustainable Construction <i>Anna Kuklíková Anna Kuklíková Anna Kuklíková (Gar.)</i>	Z	2	1P+1C	L	PV
134YNKS	Glass Structures <i>Martina Eliášová Martina Eliášová Martina Eliášová (Gar.)</i>	Z	2	1P+1C	Z,L	PV
135YING	Engineering geology <i>Svatoslav Chamra, Jan Valenta, Milan Aue, Vladimír Tylš Jan Valenta Jan Valenta (Gar.)</i>	Z	2	1P+1C		PV
135YVPZ	Computer analysis in underground structures <i>Jan Salák, Jan Faltýnek, Jan Pruška, Jan Ježek Jan Pruška</i>	Z	2	1P+1C	L	PV
136YMKO	Urban Roads <i>Michal Uhlík, Petr Slabý Michal Uhlík</i>	Z	2	1P+1C		PV
136YSSO	Road Software <i>Ludvík Vébr, Martin Valášek, Petr Pánek Petr Pánek</i>	Z	2	1P+1C	L	PV
136YBD1	BIM for Transport Infrastructure and Building Structures <i>Karel Fazekas, Jan Lambert, Petr Pánek, Jakub Veselka Josef Žák Petr Pánek (Gar.)</i>	Z	4	1P+3C		PV
137YVTK	High Speed Tracks <i>Hana Krejčíková Petr Běšovec</i>	Z	2	1P+1C	L	PV
137YKZE	Construction of Railway Structure <i>Martin Lidmila, Jan Zvěřina, Karel Augustín Fridrich, Leoš Horník Petr Běšovec</i>	Z	2	1P+1C	L	PV
154YIGD	Engineering Surveying in Transportation Engineering <i>Pavel Hánek Lenka Línková Pavel Hánek (Gar.)</i>	Z	2	1P+1C	L	PV

Characteristics of the courses of this group of Study Plan: Code=BK20140800_1 Name=obor Konstrukce a dopravní stavby, povinné volitelné p edm ty, 8. semestr

123YTVM	Production technology of building materials	Z	2
Basic building materials, different types of the production technology, energy consumption of the production, storage and transport, safety at work.			

126YVSF	Small Business Management	Z	2
The aim of the subject is to provide information necessary for entrepreneurial activity and to support and develop students' entrepreneurial thinking. Provide an objective and comprehensive view of business in the Czech Republic. Point out the business mistakes that cause high mortality. Students will acquire the knowledge necessary for establishing various forms of business subjects, knowledge necessary for orientation in tax matters, insurance payments, labor law relations. Topics: Modern business history, business environment in the Czech Republic and comparison with other countries. Small Business Specifics - Benefits - Disadvantages - Opportunities - Threats. Successful entrepreneurs and their secrets of success. The personality of the entrepreneur and the reasons for his failure. The life cycle of a small business and the crisis of growth. Building a small business. Management and planning in a small business. Leadership. Business idea, vision and mission. Business plan. Intuitive marketing. Financial resources for business. Establishment of a business entity - legal minimum. Issues of income tax and VAT, social and health insurance business - tax minimum.			
132YMMO	Modern Methods of Optimization	Z	2
The course is aimed at an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on the introduction of driving principles, however, practical applications in MATLAB environment are also conducted during exercises.			
132YPV1	Programming in C++ for Engineering Calculations 1	Z	2
Introduction to C++ programming, non-objective primer of the language, basic algorithms used in the engineering computing.			
132YNMI	Numerical Methods in Engineering Practice	Z	2
132YPM1	Computer Analysis of Structures 1	Z	2
Static model of a structure. Computer codes RFEM-Dlubal, SCIA Engineer.			
133YPRB	Prestressed Concrete	Z	2
Principles of prestressed concrete. Materials for PC. Prestressing systems and technologies. Partial prestressing - basic information. Design of PC structures. Serviceability limit states and ultimate limit states. Detailing.			
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
133YTB	Technology of Concrete II	Z	2
Structure of concrete. Fibreconcrete, influence of different kinds of fibres on properties of concrete, production of fibreconcrete, testing of fibreconcrete. Influence of extreme temperature on properties of concrete. Technology off-shore structures. Nanotechnology in civil engineering.			
133YBKP	Computer design of concrete structures	Z	2
134YMOD	Numerical Modeling of Steel and Timber Structures	Z	2
Subject familiarizes students with the basis of modelling of steel and timber structures. Students manage basis of simulation during the creation of static model of the structure as well as the global analysis and check with respect to European design codes.			
134YPNK	Fire Resistance of Steel and Timber Structures	Z	2
The class gives introduction to fire safety and fire resistance of steel, steel-concrete composite and timber structural elements.			
135YVZK	Computer analysis in foundation engineering	Z	2
Numerical methods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical software both in the field of conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.			
136YSKL	Building of Roads	Z	2
Basic characteristic of road construction materials, their checking and using at construction roads. Technical conditions of constructions roads - earthy body, plain, subgrade and cover layers. Care of roads. Building roads. Type airports. Up - and - away and landing strips, taxi channel tracks and ramp. Classification airports. Utilization of airport with reference to dominant directions winds. Stop space airport. Function apron buildings.			
137YMKK	City Rail Transport	Z	2
Solution of the city urban transport especially principles of project and construction of tramway and underground track for complex city urban solution. Solution of integrate city transport, characteristics of single systems and transfer nodes, characteristic of suburban traffic and the principle solution.			
123YNTP	Numerical Analysis of Transport Processes	Z	2
132YSHK	Statics and Reconstruction of Historical Structures	Z	2
Short overview of historical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in foundation conditions included. Most frequent causes of failure of panel buildings. Visit to the historical part of Prague Castle.			
132YPM2	Computer Analysis of Structures 2	Z	2
Limit state of frames. Stability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures. Dynamic analysis of structures. Verification of results.			
132YDSK	Diagnostics of Building Structures	Z	2
Understanding of the problems of diagnostics of building structures. Monitoring of building structures, utilization of static and dynamic experimental analysis in building structure diagnostics - the arrangement of an experiment, monitored parameters, measuring line, processing and evaluation of experimental results, detection and localization of the building structure damage, practical examples. Building structure crack analysis, material characteristics determination on existing structures, identification of building structure model.			
132YMCK	Micromechanics of Cement-Based Composites	Z	2
133YBSV	Concretes with Special Properties	Z	2
High-strength concrete, high-performance concrete, fibreconcrete, shotcrete, high-density concrete, heavy-weight concrete, air-entrained concrete, light-weight structural concrete			
133YTBM	Technology of Construction and Reconstructions of Bridge Structures	Z	2
Technology of construction and reconstructions of concrete bridge structures - substructure and foundations, superstructures. Basis of design and detailing.			
133YMBV	Structural Models and Reinforcing of Concrete Members	Z	2
133YPNB	Fire design of concrete and masonry structures	Z	2
Fire design of concrete structures. Nominal and parametric fire exposures. Verification methods of fire resistance. Mechanical, thermal and physical properties of concrete and steel at elevated temperatures. Design procedures: tabulated data or testing, simplified calculation methods, advanced calculation methods. Shear torsion and anchorage of reinforcement. Spalling of concrete. Addition rules for high strength concrete. Calculation of fire design of concrete and masonry structures.			
134YTSK	Thin-Walled and Composite Structures	Z	2
The course includes advanced analysis and structural design of slender sections and cold-formed sections. Advanced structural design of steel-concrete composite is also included.			
134YOM2	Steel Bridges 2	Z	2
The subject deals with the analysis, design and specifics of steel railway bridges.			
134YDUV	Timber and Sustainable Construction	Z	2
Introduction to sustainable use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of structures composed from different materials. Principles of strengthening and repairing of timber structures.			

134YNKS	Glass Structures	Z	2
The course is intending to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detailing of for basic glass structures: panes beams and fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs and floors. On this purpose the properties of glass as structural material will be presented in comparison with other basic building materials, together with selected examples of glass/glazing applications. Design details and connecting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked examples will accompany the lectures for better understanding, and design project will help to fix specific knowledge.			
135YING	Engineering geology	Z	2
Elements of conceptions of engineering geology and hydrogeology, methods of investigation in engineering geology, maps in geology and engineering geology.			
135YVPZ	Computer analysis in underground structures	Z	2
Numerical methods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical software both in the field of conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.			
136YMKO	Urban Roads	Z	2
Documentation for territorial and building management, traffic solutions in territorial plans, functions and transversal arrangement of urban roads, principles of at-grade intersections design, roundabouts, organization, traffic regulation and management, traffic calming, traffic surveys and documentation of selected elements of urban roads.			
136YSSO	Road Software	Z	2
136YBD1	BIM for Transport Infrastructure and Building Structures	Z	4
137YVTK	High Speed Tracks	Z	2
Conception of Europe high-speed railway track construction, Track geometry, superstructure and substructure construction, Example of high-speed railway traffic solutions abroad Construct conception in Czech Republic.			
137YKZE	Construction of Railway Structure	Z	2
154YIGD	Engineering Surveying in Transportation Engineering	Z	2
Positional arcs in coordinate system S-JTSK in highway construction (both simple and compound curves). Transition curve and arcs with transition curves. Vertical curves. Theory of errors use for evaluation of accuracy of measurement and setting-out. Solving of more complicated setting-out problems and measurement of construction shifts and deformations.			

Name of the block: Povinná t lesná výchova, sportovní kurzy

Minimal number of credits of the block: 0

The role of the block: PT

Code of the group: BTV_POV

Name of the group: Povinná t lesná výchova

Requirement credits in the group:

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

Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
TV1	Physical Education	Z	0	0+2	Z	PT
TV2	Physical Education	Z	0	0+2	L	PT

Characteristics of the courses of this group of Study Plan: Code=BTV_POV Name=Povinná t lesná výchova

TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

Name of the block: Elective courses

Minimal number of credits of the block: 0

The role of the block: V

Code of the group: BF2013_KG

Name of the group: Výb rová konstruktivní geometrie

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 1

The role of the block: S

Code of the group: BK20130600_1

Name of the group: obor Konstrukce a dopravní stavby, výuka v terénu, 6. semestr

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

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

Credits in the group: 1

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
136YSVT	Field Work - Road Construction Petr Mondschein, Petr Pánek Petr Pánek	KZ	1	2C	L	s
137YZVT	Field training - Railway structures (1 week) Martin Lidmila, Ondřej Bret, Michal Peřírek Petr Beškovský	KZ	1	2C	L	s

Characteristics of the courses of this group of Study Plan: Code=BK20130600_1 Name=obor Konstrukce a dopravní stavby, výuka v terénu, 6. semestr

136YSVT	Field Work - Road Construction	KZ	1
Planimetric and hypsometric sight existing communication (polygonal traverse, sight cross section), design reconstruction, graphical part (situation, longitudinal profile, typical cross-section), layout transition curve.Choice traffic- engineering inquiry.			
137YZVT	Field training - Railway structures (1 week)	KZ	1

Name of the block: Jazyky

Minimal number of credits of the block: 4

The role of the block: J

Code of the group: BF_JAZYKY_1

Name of the group: povinn volitelný jazyk - 1. semestr

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

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

Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
104YC1A	English 1 Magdalena Žemlíková, Svatava Boboková-Bartíková, Věra Ermáková, Petra Florianová, Sandra Giormani, Hana Horká, Libuše Jilemnická, Petra Martincová, Renáta Nivenová, Petra Martincová Svatava Boboková-Bartíková (Gar.)	Z	2	2C	Z,L	J
104YC1F	French 1 Radka Škardová, Marie Robovská Svatava Boboková-Bartíková Radka Škardová (Gar.)	Z	2	2C	Z,L	J
104YC1N	German 1 Daria Šemberová, Svatava Boboková-Bartíková, Helena Chromá Olga Sedlářková Svatava Boboková-Bartíková (Gar.)	Z	2	2C		J
104YC1R	Russian 1 Svatava Boboková-Bartíková	Z	2	2C		J
104YC1S	Spanish 1 Miloslava Menclová	Z	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF_JAZYKY_1 Name=povinn volitelný jazyk - 1. semestr

104YC1A	English 1	Z	2
104YC1F	French 1	Z	2
104YC1N	German 1	Z	2
104YC1R	Russian 1	Z	2
104YC1S	Spanish 1	Z	2

Code of the group: BF_JAZYKY_2

Name of the group: povinn volitelný jazyk - 2. semestr

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

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

Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
104YC2A	English 2 Magdalena Žemliková, Svatava Boboková-Bartíková, Vra er máková, Petra Florianová, Sandra Giormani, Hana Horká, Šárka Chroustová, Petra Martinová, Renáta Nivenová, Svatava Boboková-Bartíková Svatava Boboková-Bartíková (Gar.)	Z,ZK	2	2C		J
104YC2F	French 2 Radka Škardová, Marie Robovská Svatava Boboková-Bartíková Svatava Boboková-Bartíková (Gar.)	Z,ZK	2	2C		J
104YC2N	German 2 Svatava Boboková-Bartíková, Helena Chromá Olga Sedláková Svatava Boboková-Bartíková (Gar.)	Z,ZK	2	2C		J
104YC2R	Russian 2 Vra er máková Svatava Boboková-Bartíková Vra er máková (Gar.)	Z,ZK	2	2C		J
104YC2S	Spanish 2 Miloslava Menclová	Z,ZK	2	2C		J

Characteristics of the courses of this group of Study Plan: Code=BF_JAZYKY_2 Name=povinn volitelný jazyk - 2. semestr

104YC2A	English 2	Z,ZK	2
104YC2F	French 2	Z,ZK	2
104YC2N	German 2	Z,ZK	2
104YC2R	Russian 2	Z,ZK	2
104YC2S	Spanish 2	Z,ZK	2

Name of the block: Povinn volitelné p edm ty, doporu ení S2

Minimal number of credits of the block: 5

The role of the block: S2

Code of the group: BK20130700_2

Name of the group: obor Konstrukce a dopravní stavby, projekty D, 7. semestr

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

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

Credits in the group: 5

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
135YDPJ	Project Design D Jan Salák, Jan Kos, Ji í Barták, Jan Pruška Jan Pruška Jan Pruška (Gar.)	KZ	5	4C	Z	S2
136YDPJ	Project Design D Ludvík Věbr, Petr Mondschein, Jan Valentin, Jaromíra Ježková, Petr Pánek Jan Pruška	KZ	5	4C	Z	S2
137YDPJ	Project Design D Petr B ešovský, Leoš Horník ek Petr B ešovský	KZ	5	4C	Z	S2
220YDPJ	Project Design D Radek Vaší ek, Ji í Svoboda Radek Vaší ek Radek Vaší ek (Gar.)	KZ	5	4C	Z	S2

Characteristics of the courses of this group of Study Plan: Code=BK20130700_2 Name=obor Konstrukce a dopravní stavby, projekty D, 7. semestr

135YDPJ	Project Design D	KZ	5
136YDPJ	Project Design D	KZ	5
137YDPJ	Project Design D	KZ	5
220YDPJ	Project Design D	KZ	5

Solution of practical topic from the field of experimental geotechnics - familiarization with testing procedures in the laboratory and in the field (Underground Laboratory Josef - <http://ceg.fsv.cvut.cz>). Literature review, preparation and execution of tests, evaluation. Topics are linked to CEG research projects. Suitable as a preparation for bachelor thesis. The solution takes place after an individual agreement with the supervisor of particular topic.

Name of the block: Povinn volitelné p edm ty, doporu ení S1

Minimal number of credits of the block: 17

The role of the block: S1

Code of the group: BK20130700_1

Name of the group: obor Konstrukce a dopravní stavby, projekty K, 7. semestr

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

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

Credits in the group: 5

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
132YKPJ	Project Design K Michal Polák, Tomáš Plachý, Pavel Tesárek, Jiří Němec, Milan Jirásek, Michal Šejnoha, Petr Kabele, Pavel Kuklík, Petr Konvalinka, Petr Kabele	KZ	5	4C	Z	S1
133YKPJ	Project Design K Iva Broukalová Lukáš Vráblík (Gar.)	KZ	5	4C	Z	S1
134YKPJ	Project Design K Josef Macháček Josef Macháček Josef Macháček (Gar.)	KZ	5	4C	Z	S1

Characteristics of the courses of this group of Study Plan: Code=BK20130700_1 Name=obor Konstrukce a dopravní stavby, projekty K, 7. semestr

132YKPJ	Project Design K	KZ	5	Students develop individual projects under supervision of teachers from the Department of Mechanics. Project topics are presented at the department website. Students may propose own topics - in this case, suitability of the topic and feasibility of the project will be evaluated by the project supervisor.		
133YKPJ	Project Design K	KZ	5			
134YKPJ	Project Design K	KZ	5	Design of a steel or timber structure by a team of three students. In the first phase each student prepares alternative solution, followed by a choice of the optimum design by the all team. In the second phase the team deals jointly with: final layout, static calculation, drawing documentation of selected details and technical report. In the end the team prepares powerpoint presentation of the all progress of work.		

Code of the group: BK20130800_2

Name of the group: obor Konstrukce a dopravní stavby, bakalářská práce

Requirement credits in the group: In this group you have to gain 12 credits

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

Credits in the group: 12

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
101BAPK	Bachelor Thesis Jozef Bobok, Jaroslav Novotný Iva Malechová Jaroslav Novotný (Gar.)	Z	12	10C	L,Z	S1
132BAPK	Bachelor Thesis Michal Polák, Milan Jirásek, Michal Šejnoha, Petr Havlíšek, Aleš Jíra, Jiří Máca, Jan Vorel, František Denk, Martin Horák Aleš Jíra	Z	12	10C	L,Z	S1
133BAPK	Bachelor Thesis	Z	12	10C	L,Z	S1
134BAPK	Bachelor Thesis Jakub Dolejš Jakub Dolejš Jakub Dolejš (Gar.)	Z	12	10C	L,Z	S1
135BAPK	Bachelor Thesis	Z	12	10C	L,Z	S1
136BAPK	Bachelor Thesis	Z	12	10C	L,Z	S1
137BAPK	Bachelor Thesis Leoš Horníček	Z	12	10C	L,Z	S1
210BAPK	Bachelor Thesis Radoslav Sovják, Jan Zatloukal, Jindřich Fornsek, Jiří Litoš Jiří Litoš Jiří Litoš (Gar.)	Z	12	10C	L,Z	S1
220BAPK	Bachelor Thesis Radek Vašíček, Jiří Svoboda Radek Vašíček Radek Vašíček (Gar.)	Z	12	10C	L,Z	S1

Characteristics of the courses of this group of Study Plan: Code=BK20130800_2 Name=obor Konstrukce a dopravní stavby, bakalářská práce

101BAPK	Bachelor Thesis	Z	12	Bachelor Project		
132BAPK	Bachelor Thesis	Z	12			
133BAPK	Bachelor Thesis	Z	12			
134BAPK	Bachelor Thesis	Z	12	In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree.		
135BAPK	Bachelor Thesis	Z	12			
136BAPK	Bachelor Thesis	Z	12			
137BAPK	Bachelor Thesis	Z	12			
210BAPK	Bachelor Thesis	Z	12			
220BAPK	Bachelor Thesis	Z	12	Bachelor thesis elaboration with possible use of geotechnical laboratory and underground facility Josef (http://ceg.fsv.cvut.cz).		

List of courses of this pass:

Code	Name of the course	Completion	Credits
100ODPR	Industrial Training (3 weeks)	Z	0
101BAPK	Bachelor Thesis Bachelor Project	Z	12
101KG01	Constructive Geometry	Z,ZK	5
101MA01	Mathematics 1	Z,ZK	6
101MA02	Mathematics 2	Z,ZK	6
101MA03	Mathematics 3	Z,ZK	6
102FY01	Physics Mass, structure of matter. Motion of matter, kinematics, dynamics. Force field. Deformations and leak. Oscillations, elastic waves, acoustics. Heat properties of matter.	Z,ZK	5
104YC1A	English 1	Z	2
104YC1F	French 1	Z	2
104YC1N	German 1	Z	2
104YC1R	Russian 1	Z	2
104YC1S	Spanish 1	Z	2
104YC2A	English 2	Z,ZK	2
104YC2F	French 2	Z,ZK	2
104YC2N	German 2	Z,ZK	2
104YC2R	Russian 2	Z,ZK	2
104YC2S	Spanish 2	Z,ZK	2
105SVAR	Social Sciences and Architecture Subject introduces the fundamental principles of several social sciences: Economics, Economic Policy, Political Science and Law with an overview of architectural development. Economic section offers an introduction to market economy, economic policy and international economy. Lectures and seminars dedicated to Political Science explain Theory of state, political systems, democracy and totalitarianism. Law section comprises brief overview of development of Roman law with interpretation of the Constitution, Labor Code and Civil Code.	Z,ZK	6
122TDS	Technology of Traffic Buildings	ZK	3
123CH01	Chemistry Introduction to general chemistry - chemical bond, compounds, reactions, equilibrium. Chemistry of environment - water, atmosphere, pedosphere. Chemistry of building materials - inorganic binders, glass, ceramic, metals, natural polymers, wood, synthetic polymers on C and Si basis. Introduction to degradation of building materials and to analytical chemistry.	Z,ZK	5
123SH01	Building Materials Building materials - basis course. Classification of the materials. Structure of materials. Main properties of materials. Application of materials in building constructions. Introduction to material testing.	Z,ZK	5
123YNTP	Numerical Analysis of Transport Processes	Z	2
123YTVM	Production technology of building materials Basic building materials, different types of the production technology, energy consumption of the production, storage and transport, safety at work.	Z	2
124PS01	Building Structures 1	Z,ZK	7
126EKMN	Economics and Management	Z,ZK	7
126STMN	Building Management Compendium of basic concepts and Project Management context. Methods for proceeding support. Legal rules, SN and ISO specifications. Basic aspects of Project Management. Construction as a product of Build-up Project. Purposes, strategies, stages and surround of Build-up Project. Status of Project Manager. Purchases and treaties in Project. Quality Management, Risk Management. Financial Management and Project Assessment. Feasibility Study. Project Management in light of time, sources and costs. Claim Management. Territorial planning and construction code law, public procurement law, definition of terms. Commercial contractual relationships, making a contract, forms of contracts, usage of general terms and conditions utilization. Public tender and its impact on the liabilities of the participants. Securing of a liability - penalty, guarantee. Main contract types in construction - contract of the conclusion of a future contract, purchase contract, contract for work, Contents of the contract.	Z,ZK	6
126YVSF	Small Business Management The aim of the subject is to provide information necessary for entrepreneurial activity and to support and develop students' entrepreneurial thinking. Provide an objective and comprehensive view of business in the Czech Republic. Point out the business mistakes that cause high mortality. Students will acquire the knowledge necessary for establishing various forms of business subjects, knowledge necessary for orientation in tax matters, insurance payments, labor law relations. Topics: Modern business history, business environment in the Czech Republic and comparison with other countries. Small Business Specifics - Benefits - Disadvantages - Opportunities - Threats. Successful entrepreneurs and their secrets of success. The personality of the entrepreneur and the reasons for his failure. The life cycle of a small business and the crisis of growth. Building a small business. Management and planning in a small business. Leadership. Business idea, vision and mission. Business plan. Intuitive marketing. Financial resources for business. Establishment of a business entity - legal minimum. Issues of income tax and VAT, social and health insurance business - tax minimum.	Z	2
132ANKC	Analysis of Structures Analyses of statically determinate and statically/deformable indeterminate structures, concerning live loads solution, stresses in thin-wall beams, analysis of walls and plates, matrix formulation of deformation method, principles of FEM, models for a beam on elastic foundation and stability of structures.	Z,ZK	5
132BAPK	Bachelor Thesis	Z	12
132DY01	Dynamics of structures 1 Principles of theory of vibration, dynamic loading. Free and forced vibration of single-degree-of-freedom systems. Damped vibration. Methods of dynamic analysis of multi-degree-of-freedom systems.	Z,ZK	5
132PRPE	Strength of Materials	Z,ZK	6
132PRPM	Deformation and Failure of Materials Viscoelasticity, models for concrete creep and shrinkage. Theory of plasticity, principles of limit analysis. Fracture mechanics. Damage mechanics.	Z,ZK	5

132SM01	Structural Mechanics 1 Concurrent forces, force systems acting on rigid bodies in space/plane, moment of a force about a point and line. Supports of a rigid body, reaction forces. Compound two-dimensional structures. Trusses. Reaction forces applying the principle of virtual work.	Z,ZK	6
132SM02	Structural Mechanics 2 Internal forces diagrams of simple statically determinate plane structures and compound two-dimensional structures. Multiaxially loaded cantilever. Definition of normal stress and prepositions of its distribution in a cross section. Equivalence of internal forces. Geometry of mass and areas, centre of gravity and moments of inertia.	Z,ZK	6
132SM3	Structural Mechanics 3	Z,ZK	5
132YDSK	Diagnostics of Building Structures Understanding of the problems of diagnostics of building structures. Monitoring of building structures, utilization of static and dynamic experimental analysis in building structure diagnostics - the arrangement of an experiment, monitored parameters, measuring line, processing and evaluation of experimental results, detection and localization of the building structure damage, practical examples. Building structure crack analysis, material characteristics determination on existing structures, identification of building structure model.	Z	2
132YKPJ	Project Design K Students develop individual projects under supervision of teachers from the Department of Mechanics. Project topics are presented at the department website. Students may propose own topics - in this case, suitability of the topic and feasibility of the project will be evaluated by the project supervisor.	KZ	5
132YMCK	Micromechanics of Cement-Based Composites	Z	2
132YMMO	Modern Methods of Optimization The course is aimed at an overview of numerical optimization methods applicable not only in the Civil Engineering area. The emphasis is put more on the introduction of driving principles, however, practical applications in MATLAB environment are also conducted during exercises.	Z	2
132YNMI	Numerical Methods in Engineering Practice	Z	2
132YPM1	Computer Analysis of Structures 1 Static model of a structure. Computer codes RFEM-Dlubl, SCIA Engineer.	Z	2
132YPM2	Computer Analysis of Structures 2 Limit state of frames. Stability analysis of structures. Second order theory. Beams and gridwork girders on elastic foundation. Plate and wall structures. Dynamic analysis of structures. Verification of results.	Z	2
132YPV1	Programming in C++ for Engineering Calculations 1 Introduction to C++ programming, non-objective primer of the language, basic algorithms used in the engineering computing.	Z	2
132YSHK	Statics and Reconstruction of Historical Structures Short overview of historical vaults and roof trusses. Static behaviour and most frequent causes of failure. Methods of reconstruction, changes in foundation conditions included. Most frequent causes of failure of panel buildings. Visit to the historical part of Prague Castle.	Z	2
133BAPK	Bachelor Thesis	Z	12
133BK01	Concrete and Masonry Structures 1	Z,ZK	6
133BK02	Concrete and Masonry Structures 2	Z,ZK	7
133BM01	Concrete Bridges 1 The aim of the course is introduction into principles of design of concrete bridge structures. The course includes corresponding problems from terminology, spatial arrangement and loads on bridges up to design of various types of concrete bridge structures and technology of their construction.	Z,ZK	7
133NNK	Fundamentals of Structural Design	Z,ZK	7
133YBKP	Computer design of concrete structures	Z	2
133YBSV	Concretes with Special Properties High-strength concrete, high-performance concrete, fibreconcrete, shotcrete, high-density concrete, heavy-weight concrete, air-entrained concrete, light-weight structural concrete	Z	2
133YKPJ	Project Design K	KZ	5
133YMBV	Structural Models and Reinforcing of Concrete Members	Z	2
133YPNB	Fire design og concrete and mnsory structures Fire design of concrete structures. Nominal and parametric fire exposures. Verification methods of fire resistance. Mechanical, thermal and physical properties of concrete and steel at elevated temperatures. Design procedures: tabulated data or testing, simplified calculation methods, advanced calculation methods. Shear torsion and anchorage of reinforcement. Spalling of concrete. Addition rules for high strength concrete. Calculation of fire design of concrete and masonry structures.	Z	2
133YPRB	Prestressed Concrete Principles of prestressed concrete. Materials for PC. Prestressing systems and technologies. Partial prestressing - basic information. Design of PC structures. Serviceability limit states and ultimate limit states. Detailing.	Z	2
133YPRK	Failures and Rehabilitation of Concrete Structures	Z	2
133YTB	Technology of Concrete II Structure of concrete. Fibreconcrete, influence of different kinds of fibres on properties of concrete, production of foibreconcrete, testing of fibreconcrete. Influence of extreme temperature on properties of concrete. Technology off-shore structures. Nanotechnology in civil engineering.	Z	2
133YTBM	Technology of Construction and Reconstructions of Bridge Structures Technology of construction and reconstructions of concrete bridge structures - substructure and foundations, superstructures. Basis of design and detailing.	Z	2
134BAPK	Bachelor Thesis In this course, student formulates a bachelor's thesis that is necessary to reach the bachelor's degree.	Z	12
134DK01	Timber Structures 1 Introduction and presentation of timber structures use in building industry. Wood and wood-based materials properties. Safety of timber structures design, ultimate limit states, valid standards. Cross section design of simple members. Connections of timber structures. Glued joints. Basic structural systems. Fire design. Protection of timber structures.	Z,ZK	5
134OCM1	Steel Bridges 1 This course includes basic problems of design of steel and composite steel - concrete road and railway bridges	Z,ZK	5
134OK01	Steel Structures 1 The course OK01 aims to expand the knowledge acquired in the subject NNK and concerning design of basic steel structures. In the theoretical part are delivered possibilities of global analysis of structures including classification from view of necessities of nonlinear analyses. Design of steel elements is widen for global analysis methods, advanced composite steel and concrete beams/columns and cold-formed thin-walled elements. The main part of the subject deals with complex design of multi-storey steel buildings and steel industrial halls. Final lectures concern large-span structures, uniqueness in design of tall buildings, including effects of seismicity.	Z,ZK	6
134YDUV	Timber and Sustainable Construction Introduction to sustainable use of wood in construction with respect to previous courses. Theoretical methods of structural design and design of structures composed from different materials. Principles of strengthening and repairing of timber structures.	Z	2

134YKPJ	Project Design K	KZ	5
Design of a steel or timber structure by a team of three students. In the first phase each student prepares alternative solution, followed by a choice of the optimum design by the all team. In the second phase the team deals jointly with: final layout, static calculation, drawing documentation of selected details and technical report. In the end the team prepares powerpoint presentation of the all progress of work.			
134YMOD	Numerical Modeling of Steel and Timber Structures	Z	2
Subject familiarize students with the basis of modelling od steel and timber structures. Students manage basis of simulation during the creation of static model of the structure as well as the global analysis and check with respect to European design codes.			
134YNKS	Glass Structures	Z	2
The course is intending to introduce the students the field of structural applications of glass and to give them some specific skills for calculation and detailing of for basic glass structures: panes beams and fins, columns and walls, point-supported glass, as well as for glazing systems such as glass facades, canopies and roofs, stairs and floors. On this purpose the properties of glass as structural material will be presented in comparison with other basic building materials, together with selected examples of glass/glazing applications. Design details and connecting technology, relevant technical regulations, specification and current methods applied in design will be described. Worked examples will accompany the lectures for better understanding, and design project will help to fix specific knowledge.			
134YOM2	Steel Bridges 2	Z	2
The subject deals with the analysis, design and specifics of steel railway bridges.			
134YPNK	Fire Resistance of Steel and Timber Structures	Z	2
The class gives introduction to fire safety and fire resistance of steel, steel-concrete composite and timber structural elements.			
134YTSK	Thin-Walled and Composite Structures	Z	2
The course includes advanced analysis and structural design of slender sections and cold-formed sections. Advanced structural design of steel-concrete composite is also included.			
135BAPK	Bachelor Thesis	Z	12
135GEMZ	Geology and soil mechanics	Z,ZK	7
135PSMH	Underground structures and rock mechanics.	Z,ZK	6
Geotechnical investigation, basic conceptions of rock classification and properties evaluation, laboratory and field testing, elements of calculations in rock mechanics and underground construction, tunnelling methods (drill and blast, SEM, TBM), technology of underground constructions			
135YDPJ	Project Design D	KZ	5
135YING	Engineering geology	Z	2
Elements of conceptions of engineering geology and hydrogeology, methods of investigation in engineering geology, maps in geology and engineering geology.			
135YVPZ	Computer analysis in underground structures	Z	2
Numerical methods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical software both in the field of conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.			
135YVZK	Computer analysis in foundation engineering	Z	2
Numerical methods in CAD/CAM in geomechanics. Basic types of constitutive models of soil and rock mass behavior. Summary of PC geotechnical software both in the field of conventional methods and in numerical modelling domain. Practical solutions of selected geotechnical problems.			
135ZS01	Foundations 1	Z,ZK	7
136BAPK	Bachelor Thesis	Z	12
136DSUP	Transport Structures and Urban Planning	Z,ZK	6
136SS01	Road Structures 1	Z,ZK	6
136SS02	Road construction 2	Z,ZK	5
Design classification of roads and motorways, design speed, road horizontal alignment and level design, form of road and motorway cross sections, road earthwork - proportions, shapes and design, volume of earthworks, muss-haul diagram, road engineering structures, equipment of roads and motorways, crossroads and intersections. Urban roads, dissimilarities of urban road traffic and construction, function classes and marking of urban road types, traffic place and street place, principles of traffic calming on urban roads.			
136YBD1	BIM for Transport Infrastructure and Building Structures	Z	4
136YDPJ	Project Design D	KZ	5
136YMKO	Urban Roads	Z	2
Documentation for territorial and building management, traffic solutions in territorial plans, functions and transversal arrangement of urban roads, principles of at-grade intersections design, roundabouts, organization, traffic regulation and management, traffic calming, traffic surveys and documentation of selected elements of urban roads.			
136YSKL	Building of Roads	Z	2
Basic characteristic of road construction materials, their checking and using at construction roads. Technical conditions of constructions roads - earthy body, plain, subgrade and cover layers. Care of roads. Building roads. Type airports. Up - and - away and landing strips, taxi channel tracks and ramp. Classification airports. Utilization of airport with reference to dominant directions winds. Stop space airport. Function apron buildings.			
136YSSO	Road Software	Z	2
136YSVT	Field Work - Road Construction	KZ	1
Planimetric and hypsometric sight existing communication (polygonal traverse, sight cross section), design reconstruction, graphical part (situation, longitudinal profile, typical cross-section), layout transition curve.Choice traffic- engineering inquiry.			
137BAPK	Bachelor Thesis	Z	12
137YDPJ	Project Design D	KZ	5
137YKZE	Construction of Railway Structure	Z	2
137YMKK	City Rail Transport	Z	2
Solution of the city urban transport especially principles of project and construction of tramway and underground track for complex city urban solution. Solution of integrate city transport, characteristics of single systems and transfer nodes, characteristic of suburban traffic and the principle solution.			
137YVTK	High Speed Tracks	Z	2
Conception of Europe high-speed railway track construction, Track geometry, superstructure and substructure construction, Example of high-speed railway traffic solutions abroad Construct conception in Czech Republic.			
137YZVT	Field training - Railway structures (1 week)	KZ	1
137ZE01	Railway Structures 1	Z,ZK	7
Vehicle and track, track construction and geometry, track spatial disposition, research and projection, project documentation, tracing and pegging out of a railway track, railway construction, sub-ballast layers, earth solid and trackbed construction, defect and stability increment of substructure, requirements for soil bearing capacity and soil consolidation, substructure drainage, railway artificial structures			

141HYA	Hydraulics	Z,ZK	5
Physical properties of water. Hydrostatics - pressure in a gravitational field, applications of the Pascal's law (hydraulic jack), hydrostatic forces, loading of construction by liquids, buoyancy force. Basics of hydrodynamics - characteristics, regimes and types of water flow, hydraulic resistance, application of basic equations. Pressure flow in pipes - energy losses due to friction, minor losses, simple cases of pipe computations, pipe systems with pump, formation of a water hammer. Steady flow in open channels - uniform flow, hydraulic design of a channel, critical flow, longitudinal profiles of water level. Hydraulics of structures - outflow from an orifice and from a pipe system, flow through culverts and bridge openings. Forces due to water in motion. Water flow measurement. Groundwater flow - types, effects, filtration law, solving of a seepage.			
142VIZP	Water and Environmental Engineering	Z,ZK	4
154SG01	Land Surveying in Civil Engineering	Z,ZK	6
The shape and size of the Earth, substitutive surfaces, cartographic projections Horizontal and vertical control, coordinate calculations Quality control, deviations and tolerations in build-up Angle and distance measurements Heighting measurements Other geodetic methods in build-up (GNSS, DPZ, ...) Photogrammetry and laser scanning Thematic mapping and present state documentation Geodetic works in build-up State map series of CR and thematic maps for build-up Geographic information systems and spatial planning Cadastre of real estates Laws and decrees for geodesy and build-up in Czech Republic			
154YIGD	Engineering Surveying in Transportation Engineering	Z	2
Positional arcs in coordinate system S-JTSK in highway construction (both simple and compound curves). Transition curve and arcs with transition curves. Vertical curves. Theory of errors use for evaluation of accuracy of measurement and setting-out. Solving of more complicated setting-out problems and measurement of construction shifts and deformations.			
210BAPK	Bachelor Thesis	Z	12
220BAPK	Bachelor Thesis	Z	12
Bachelor thesis elaboration with possible use of geotechnical laboratory and underground facility Josef (http://ceg.fsv.cvut.cz).			
220YDPJ	Project Design D	KZ	5
Solution of practical topic from the field of experimental geotechnics - familiarization with testing procedures in the laboratory and in the field (Underground Laboratory Josef - http://ceg.fsv.cvut.cz). Literature review, preparation and execution of tests, evaluation. Topics are linked to CEG research projects. Suitable as a preparation for bachelor thesis. The solution takes place after an individual agreement with the supervisor of particular topic.			
TV1	Physical Education	Z	0
TV2	Physical Education	Z	0

For updated information see <http://bilakniha.cvut.cz/en/FF.html>

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