Study plan

Name of study plan: 14 141 NSTI AME 2012 základ

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 Required credits: 132 Elective courses credits: -8 Sum of credits in the plan: 124 Note on the plan:

Name of the block: Compulsory courses in the program Minimal number of credits of the block: 91 The role of the block: P

Code of the group: 12NS*1P-AME Name of the group: 2012 NSTI 1.sem povinné AME 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 7 courses Credits in the group: 26 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
2013054	Mathematics for Mechanics	Z	4	3P+1C	*	Р
2311075	Mechanics of Mechanisms Jan Pelikán, Václav Bauma, Petr Beneš, Zden k Neusser, Zbyn k Šika, Michael Valášek, Jan Zav el Zbyn k Šika Zbyn k Šika (Gar.)	ZK	4	3P+0C	*	Р
2141093	Microelectronics Lukáš Novák, Stanislava Papežová Stanislava Papežová Lukáš Novák (Gar.)	Z,ZK	3	2P+0C+1L	*	Ρ
2312017	Controlled mechanical systems I. Václav Bauma, Zden k Neusser, Zbyn k Šika, Michael Valášek, Ivo Bukovský, Pavel Steinbauer Michael Valášek Michael Valášek (Gar.)	КZ	3	3P+0C	*	Р
2121016	Theoretical Fluid Mechanics Tomáš Hyhlík Tomáš Hyhlík (Gar.)	ZK	4	3P+0C	*	Ρ

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

2013054 Mathematics for Mechanics Summary: Tensor calculus. Introduction to functional analysis. Calculus of variations. Orthogonal transformation of coordinate systems. Afinne orthogonal tensors and tensor operations. Tensor as linear operator and bilinear form. Metrics and metric spaces. Convergence. Completness. Linear normed space. Banach space. Linear space with scalar product (unitary space). Hilbert space. Contractive operators and Banach fixed point theorem. Function spaces in examples. Operators and functionals. Linear, continuous and bounded operator/functional. Derivative of a functional in the given direction. Gateaux differential and derivative. Necessary and sufficient conditions for extremes of a functional. Convex set and convex functional. Minimum of convex functional. Extremes of functional of different types. Euler equation. Necessary and sufficient conditions for extrema. Discrete methods for approximation of the minima of an functional. Ritz method. 2311075 ZK 4 Mechanics of Mechanisms 2141093 Z,ZK 3 Microelectronics Basic characteristics of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converters, coding, lines and protocols of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. 2312017 ΚZ 3 Controlled mechanical systems I 2121016 ΖK 4 **Theoretical Fluid Mechanics** The study subject aim is to expand the students knowledge gained from the previous subject Thermomechanics Alfa. The attention is focussed namely on fluids characteristics, various description methods of fluid dynamics under low and high Re number values, boundary layer characteristics and its stability and complex flow characteristics for incompressible flow.

Code of the group: 12NS*2P-AME Name of the group: 2012 NSTI 2.sem povinné AME 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 8 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
2142027	Electrical Engineering for Applied Mechanics Stanislava Papežová Stanislava Papežová Stanislava Papežová (Gar.)	KZ	3	2P+0C+1L	*	Р
2311074	Vibrations of Mechanical Systems Václav Bauma, Zbyn k Šika, Michael Valášek, Jan Zav el Václav Bauma Václav Bauma (Gar.)	ZK	4	3P+0C	*	Ρ
2123018	Heat and Mass Transfer Pavel Sláma	Z	2	2P+0C	*	Р
2311076	Simulation of Mechatronic Systems Jan Pelikán, Václav Bauma, Zbyn k Šika, Michael Valášek, Jan Zav el Zbyn k Šika Zbyn k Šika (Gar.)	ZK	3	2P+0C	*	Р
2111049	Theory of elasticity Dušan Gabriel Dušan Gabriel Dušan Gabriel (Gar.)	ZK	4	3P+0C	*	Р
2121055	Thermodynamics Tomáš Hyhlík Tomáš Hyhlík (Gar.)	ZK	4	3P+0C	*	Р

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

2142027 **Electrical Engineering for Applied Mechanics** 3 ΚZ The purpose of the course is to give the student knowledge about different types of electrical drives for mechatronic systems and their practical use. Method for electromagnetic field approximative solution. The theory of linear and rotating drivers. Electromagnets supplied by AC and DC power. Static and dynamics parameters of electromagnets. Drives for rotating motion. DC motors. Mathematical description of their static and dynamic properties. Principle and function of stepper motor. AC induction motors. Mathematical description of their static and dynamic properties. Using MATLAB for drivers behaviour modelling. 2311074 Vibrations of Mechanical Systems ΖK 4 2123018 2 Heat and Mass Transfer Ζ The course extends the knowledge gained in the subject Thermomechanics Alfa especially in the area of heat transfer. Attention is paid to more complex cases (non-stationary, multidimensional problems) as well as to processes where heat transfer is accompanied by simultaneous mass transfer (mixing exchangers). 2311076 Simulation of Mechatronic Systems ΖK 3 2111049 Theory of elasticity ΖK 4 The objective of this course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mechanics courses such as theory of plasticity, fracture mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions of stress and strain tensors used in the linear theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tensor, postulates the constitutive relations for linear elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equation expressed in terms of the displacement vector and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylindrical coordinate systems is considered and the Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam using the Airy stress function in the form of a polynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrated vertical force action on a horizontal straight boundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in solid mechanics is presented including the principles of virtual displacements and virtual forces. 2121055 7K Λ Thermodynamics The aim of the course is to expand the students' knowledge gained from the previous course Thermomechanics Alfa in the areas of the real gas thermodynamics, irreversible process thermodynamics, multiphase- and multicomponent system characteristics and thermodynamics cycles of the real heat engines and machines also.

Code of the group: 12NS*3P-AME Name of the group: 2012 NSTI 3.sem povinné AME 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:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) Continuum Mechanics 2111083 ΖK 4 3P+0C Р Ji í Plešek **Ji í Plešek** Ji í Plešek (Gar.) **Computational Fluid Mechanics** 2121043 ΖK 3P+0C 4 Ρ Tomáš Hyhlík Statistical Mechanics 2311079 ΖK 4 3P+0C Václav Bauma, Zbyn k Šika, Michael Valášek, Ivo Bukovský **Ivo Bukovský** Р Ivo Bukovský (Gar.)

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

2111083	111083 Continuum Mechanics							
2121043	121043 Computational Fluid Mechanics							
This course extends the	This course extends the knowledge gained in the course of Fluid Mechanics about the knowledge of computational fluid dynamics. Emphasis is placed on understanding the basic							
principles of computational fluid dynamics based on using commercial codes. Selected problems of internal and external aerodynamics are solved.								
2311079	Statistical Mechanics	ZK	4					

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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
2121056	Gas Dynamics Michal Schmirler Michal Schmirler (Gar.)	ZK	4	3P+0C	*	Ρ
2311091	System Identification Václav Bauma, Zden k Neusser, Zbyn k Šika, Michael Valášek, Jan Zav el Zbyn k Šika Zbyn k Šika (Gar.)	ZK	3	2P+0C	*	Ρ
2111035	Finite Element Method II. Miroslav Španiel Miroslav Španiel (Gar.)	ZK	3	2P+0C	*	Р
2383062	Budget and Project Economic Assessment František Freiberg, Miroslav Žilka František Freiberg František Freiberg (Gar.)	Z	2	1P+2C	*	Ρ
2311019	Synthesis and Optimization of Mechanical Systems Václav Bauma, Petr Beneš, Zbyn k Šika, Michael Valášek, Jan Zav el Zbyn k Šika Zbyn k Šika (Gar.)	ZK	3	2P+0C	*	Ρ
2311084	Advanced Dynamics Václav Bauma, Zbyn k Šika, Michael Valášek, Jan Zav el, Tomáš Vampola Tomáš Vampola Tomáš Vampola (Gar.)	ZK	3	2P+0C	*	Ρ
2113017	Basic of Engineering Experimentals Pavel Steinbauer, Karel Doubrava, Václav Uruba Karel Doubrava Karel Doubrava (Gar.)	z	3	2P+1C	*	Р

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

2121056	Gas Dynamics	ZK	4				
The study subjects aim is to expand the students' knowledge gained from the previous Alfa versions of the bachelors subjects Fluid Mechanics and Thermomechanics. It generalizes							
the findings in the scope	e of compressible fluid flow; the attention is focussed on the several non-isentropic cycles as well as fundaments of non-station	onary and multidir	mensional flows.				
2311091	091 System Identification ZK 3						
2111035	Finite Element Method II.	ZK	3				
2383062	Budget and Project Economic Assessment	Z	2				
The goal of the course i	s to improve the knowledge gained within the basic bachelor's degree course Management and Economics of the Enterprise	. The course focu	ses primarily on				
deepening of basic know	wledge and skills in the creation and evaluation of the operational budget, proper preparation and evaluation of costing mode	I for manufacture	d products and				
the economic evaluation	n of an investment project, as it corresponds to contemporary knowledge and the development of management methods and	techniques. Stud	ents specify a				
simple fictional industria	I or engineering company or its sub-section (preferably inspired by their practical experience, internships or training program ir	n real company). T	he first student's				
task is to prepare a deta	illed plan and budget of a project (e.g. new product development, product or process innovation, etc.) focused on improveme	nt of profitability,	competitiveness				
or effectiveness of the c	ompany. The second task is cost calculation for chosen calculation unit. Last task within this course is the evaluation of econ	omical effectivene	ess of the project				
described within the firs	described within the first task. The dynamic methods like Net Present Value (NPV), Internal Rate of Return (IRR) or Discounted Payback Period (DPP) are used for this evaluation.						
The quality of realization	n and presentation of the task's outputs together with the results of the test decides on granting / denial of credit.						
2311019	Synthesis and Optimization of Mechanical Systems	ZK	3				
2311084	Advanced Dynamics	ZK	3				
2113017	Basic of Engineering Experimentals	Z	3				

Name of the block: Compulsory elective courses Minimal number of credits of the block: 41 The role of the block: PV

Code of the group: 12N**3Q--JV Name of the group: 2012 N 3.sem povinná jazyková výuka Requirement credits in the group: In this group you have to gain 2 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 2

Note on the group:

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
2043081	English - Preparatory Course / FME Veronika Kratochvílová, Eliška Vítková, Ilona Šimice, Michaela Schusová, Hana Volejníková Nina Procházková Ayyub	Z	2	0P+2C	*	PV

2043086	Czech - Preparatory Course Michaela Schusová, Hana Volejníková, Petr Laurich	Z	2	0P+2C	*	PV
2043083	French - Preparatory Course / FME Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	*	PV
2043082	German - Lower Intermediate Course Eliška Vítková, Michaela Schusová, Petr Laurich, Jaroslava Kommová Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	PV
2043085	Russian - Preparatory Course / FME Michaela Schusová, Hana Volejníková, Dušana Jirovská Eliška Vítková	Z	2	0P+2C	*	PV
2043084	Spanish - Preparatory Course / FME Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková	Z	2	0P+2C	*	PV

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

2043081 English - Preparatory Course / FME	Z	2				
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about						
familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2.						
2043086 Czech - Preparatory Course	Z	2				
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. Writing in a sir	mple way about				
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.						
2043083 French - Preparatory Course / FME	Z	2				
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. Writing in a sir	mple way about				
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.						
2043082 German - Lower Intermediate Course	Z	2				
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which	ch a student meets	s either at school				
or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	ent of professional	language.				
2043085 Russian - Preparatory Course / FME	Z	2				
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. Writing in a sir	mple way about				
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.						
2043084 Spanish - Preparatory Course / FME	Z	2				
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about						
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.						

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

Name of the group: 2012 N 3.sem povinná jazyková zkouška Requirement credits in the group: In this group you have to gain 1 credit Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 1

Note on the aroup:

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

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

2041081	English - Master Exam	ZK	1			
Mapped to the level of C	common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations which	a student meets	at school or in			
his/her free time and sp	eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of	of professional lan	iguage.			
2041086	Czech- Master Exam	ZK	1			
2041083	French - Master Exam / FME	ZK	1			
Mapped to the level of C	common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whic	h a student meets	s either at school			
or in his/her free time ar	nd speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	nt of professional	language.			
2041082	German - Master Exam / FME	ZK	1			
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school						
or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.						

2041085	Russian - Master Exam / FME	ZK	1					
Mapped to the level of C	Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school							
or in his/her free time a	nd speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme	nt of professional	language.					
2041084	Spanish - Master Exam / FME	ZK	1					
Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school								
or in his/her free time and sneaking about them. Writing in a simple way about familiar tonics, reading and comprehesion of simple texts. Improvement of professional language								

Code of the group: 12NS*1Q-AME Name of the group: 2012 NSTI 1.sem 1povvol AME Projekt I. Requirement credits in the group: In this group you have to gain 5 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 5 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2113111	Project I. Miroslav Španiel Miroslav Španiel Miroslav Španiel (Gar.)	Z	5	0P+5C	*	PV
2313111	Project I. Václav Bauma, Zden k Neusser, Zbyn k Šika, Michael Valášek, Jan Zav el Zbyn k Šika Zbyn k Šika (Gar.)	Z	5	0P+5C	*	PV
2123111	Project I. Tomáš Hyhlík (Gar.)	Z	5	0P+5C	*	PV

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

2113111	Project I.	Z	5		
2313111	Project I.	Z	5		
2123111	Project I.	Z	5		
The aim of the course for the students is to apply their knowledge of mechanics, elasticity and strength and fluid mechanics to a complex task consisting in design of controlled mechanism					
according to required function, dimensioning of selected member in terms of stiffness and durability, environmental assessment and control design. The student is led to master a					
suitable combination of	analytical and numerical methods. At the same time, topics from subjects taught in the 1st semester of the program are disc	ussed within the c	ontact hours.		

Code of the group: 12NS*2Q-AME

Name of the group: 2012 NSTI 2.sem 1povvol AME Projekt II.

Requirement credits in the group: In this group you have to gain 5 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 5

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2113112	Project II. Miroslav Španiel, Karel Doubrava, Michal Bartošák, Karel Vítek, Martin Nesládek, Milan R ži ka, Ji í Kuželka, Zden k Padovec, Tomáš Mareš, Ctirad Novotný Miroslav Španiel (Gar.)	Z	5	0P+5C	*	PV
2313112	Project II. Jan Pelikán, Václav Bauma, Zbyn k Šika, Michael Valášek, Jan Zav el, Pavel Steinbauer, Ctirad Novotný Zbyn k Šika Zbyn k Šika (Gar.)	Z	5	0P+5C	*	PV
2123112	Project II. Michal Schmirler (Gar.)	Z	5	0P+5C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12NS*2Q-AME Name=2012 NSTI 2.sem 1povvol AME Projekt II.

2113112	Project II.	Z	5
2313112	Project II.	Z	5
2123112	Project II.	Z	5
The aim of the course f	or student is to solve the technical task assigned according to his specialization and focus. The task is focused on more adva	nced work with co	ontemporary

The aim of the course for student is to solve the technical task assigned according to his specialization and focus. The task is focused on more advanced work with contemporary means of engineering analysis from commercial programs of FEM and fluid analysis, through Matlab to creation of in-house programs. The project continues and extends the knowledge acquired in subjects taught in the 2nd semester.

Code of the group: 12NS*3Q-AME

Name of the group: 2012 NSTI 3.sem 1povvol AME Projekt III. 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
2113113	Project III. Miroslav Španiel, Karel Doubrava, Michal Bartošák, Karel Vítek, Martin Nesládek, Milan R ži ka, Ji í Kuželka, Zden k Padovec, Tomáš Mareš, Miroslav Španiel (Gar.)	Z	10	0P+10C	*	PV
2313113	Project III. Jan Pelikán, Václav Bauma, Petr Beneš, Zden k Neusser, Zbyn k Šika, Michael Valášek, Jan Zav el, Ivo Bukovský, Pavel Steinbauer, Zbyn k Šika Zbyn k Šika (Gar.)	Z	10	0P+10C	*	PV
2123113	Project III. Michal Schmirler Tomáš Hyhlík (Gar.)	Z	10	0P+10C	*	PV

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

			ojokt ili.
2113113	Project III.	Z	10
2313113	Project III.	Z	10
Individual asignment			
2123113	Project III.	Z	10
This project is understo	od as preparation for the diploma thesis. The topic of the project and the way of its realization and the scope of the work is gi	ven by the pre-de	termined head
of the thesis so that the	student can follow it in his / her thesis. Completion of the project must always be verified by submitting a written report. Typic	ally the project we	ork can include:

of the thesis so that the student can follow it in his / her thesis. Completion of the project must always be verified by submitting a written report. Typically the project work can include: state of the art research acquiring theoretical and practical materials by compilation of literature, by visiting optional lectures, taking from potential partners. mastering the means for numerical or experimental modeling preparation and realization of experiments preparation of numerical models programming and more

Code of the group: 12NS*4Q-AME

Name of the group: 2012 NSTI 4.sem 1povvol AME Diplomová práce Requirement credits in the group: In this group you have to gain 10 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 10

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2113998	Diploma Project Miroslav Španiel, Karel Doubrava, Michal Bartošák, Karel Vítek, Martin Nesládek, Milan R ži ka, Ji í Kuželka, Zden k Padovec, Tomáš Mareš, Tomáš Mareš Miroslav Španiel (Gar.)	Z	10	0P+10C	*	PV
2313998	Diploma project Jan Pelikán, Václav Bauma, Petr Beneš, Zden k Neusser, Zbyn k Šika, Michael Valášek, Jan Zav el, Ivo Bukovský, Pavel Steinbauer, Michael Valášek Michael Valášek (Gar.)	Z	10	0P+10C+0L	*	PV
2123998	Diploma Thesis Michal Schmirler Michal Schmirler Michal Schmirler (Gar.)	Z	10	0P+10C	*	PV

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

2113998	Diploma Project	Z	10			
2313998	Diploma project	Z	10			
individual assignment	individual assignment					
2123998	Diploma Thesis	Z	10			
The diploma thesis is a final independent work examining the ability of independent logical technical thinking, orientation in the given problem, work with technical documents and						
application of acquired	application of acquired theoretical knowledge of students, which ends by submitting a written work in the prescribed format.					

List of courses of this pass:

Code	Name of the course	Completion	Credits			
2013054	Mathematics for Mechanics	Z	4			
Summary: Tensor c	Summary: Tensor calculus. Introduction to functional analysis. Calculus of variations. Orthogonal transformation of coordinate systems. Afinne orthogonal tensors and tensor operations.					
Tensor as linear o	Tensor as linear operator and bilinear form. Metrics and metric spaces. Convergence. Completness. Linear normed space. Banach space. Linear space with scalar product (unitary					
space). Hilbert spac	space). Hilbert space. Contractive operators and Banach fixed point theorem. Function spaces in examples. Operators and functionals. Linear, continuous and bounded operator/functional.					
Derivative of a functional in the given direction. Gateaux differential and derivative. Necessary and sufficient conditions for extremes of a functional. Convex set and convex functional.						
Minimum of convex functional. Extremes of functional of different types. Euler equation. Necessary and sufficient conditions for extrema. Discrete methods for approximation of the						
	minima of an functional. Ritz method.					

2041081	English - Master Exam	7K	1
Mapped to the lev	el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a	student meets at s	school or in
his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	auade.
20/1082	German - Master Evam / EME	76	1
2041002 Mannad to the Jave	Jef Common Furencean Francework of Poference 22 Aim: Understanding closely specker language about everyday situations which a	∠r\ student moets eith	
or in his/her free	a of common subject in the work of relevance A2 Am. Onderstanding clearly sport and used out every day situations when a	at of professional la	
2044092	s une and speaking about mem. Writing in a simple way about rammar topics, reading and comprehension of simple texts, improvement		anguage.
2041083	 Le Common Functional Statement of Defense and Antibulation and a statement of the state	∣ ∠K student meete sith	
or in his/hor from	a or common European riamework or Relefence A2 Am. Onderstanding cleanly spoken anguage about everyoday situations which a	student meets eith	
	a une and speaking about them, writing in a single way about familiar topics, reading and comprehension of single texts, improvement		
2041084 Managed to the Java	Spanish - Master Exam / FME	∣ ∠K student meete sith	l ar at ashaal
or in his/hor from	a or common European riamework or Relefence A2 Am. Onderstanding cleanly spoken anguage about everyoday situations which a	student meets eith	
	s une and speaking about them, writing in a single way about familiar topics, reading and comprehension of single texts, improvement		
2041085	Russian - Master Exam / FME	∣ ∠K student meete sith	
wapped to the leve	i or common European Framework or Reference A2 Aim: Enderstanding clearly spoken language about everyday situations wrich a	student meets eith	ier at school
	a une and speaking about them, whiting in a simple way about tariniar topics, reading and comprehesion of simple texts, improvement		anguage.
2041086	Czech- Master Exam	ZK	1
2043081	English - Preparatory Course / FME	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	e way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2	2.	
2043082	German - Lower Intermediate Course	Z	2
Mapped to the leve	I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	student meets eith	er at school
or in his/her free	e time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen	nt of professional la	anguage.
2043083	French - Preparatory Course / FME	Z	2
Aim: Understandin	ig clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	e way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2043084	Spanish - Preparatory Course / FME	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2043085	Russian - Preparatory Course / FME	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2043086	Czech - Preparatory Course	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	, Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2111035	Finite Element Method II.	ZK	3
2111049	Theory of elasticity	7K	4
2111049 The objective of thi	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity.It also provides the foundation for pursuing other solid mec	ZK hanics courses su	4 ch as theory
2111049 The objective of thi of plasticity, fractu	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity.It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definition:	ZK hanics courses suc s of stress and stra	4 ch as theory ain tensors
2111049 The objective of thi of plasticity, fractuused in the linea	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definition r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso	ZK hanics courses suc s of stress and stra r, postulates the co	4 ch as theory ain tensors onstitutive
2111049 The objective of thi of plasticity, fractuused in the lineau relations for linea	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati	ZK hanics courses suc s of stress and stra r, postulates the co on expressed in te	4 ch as theory ain tensors onstitutive rms of the
2111049 The objective of thi of plasticity, fractuused in the linear relations for linear displacement vec	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylin	ZK hanics courses suc s of stress and stra r, postulates the co on expressed in te ndrical coordinate	4 ch as theory ain tensors onstitutive rms of the systems is
2111049 The objective of thi of plasticity, fractu used in the linear relations for linear displacement vec considered and the	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylin e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre	4 ch as theory ain tensors onstitutive rms of the systems is ess function
2111049 The objective of thi of plasticity, fractu used in the linear relations for linear displacement vec considered andthe in the form of a po	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylin e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam polynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentra-	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre ated vertical force a	4 ch as theory ain tensors onstitutive rms of the systems is ess function action on a
2111049 The objective of thi of plasticity, fractu used in the linear relations for linear displacement vec considered andthe in the form of a po horizontal straight th	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylin e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam polynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentra- poundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre ated vertical force a n solid mechanics i	4 ch as theory ain tensors constitutive rms of the systems is ass function action on a is presented
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight th	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylin e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam polynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate poundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces.	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre ated vertical force a n solid mechanics i	4 ch as theory ain tensors constitutive rms of the systems is constitution action on a is presented
2111049 The objective of thi of plasticity, fractu used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cyli e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam plynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate coundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre ated vertical force a n solid mechanics i ZK	4 ch as theory ain tensors onstitutive rms of the systems is ses function action on a is presented 4
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083 2113017	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cyli e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam plynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate boundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Basic of Engineering Experimentals	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre ated vertical force a n solid mechanics i ZK Z	4 ch as theory ain tensors constitutive rms of the systems is action on a is presented 4 3
2111049 The objective of thi of plasticity, fractu used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083 2113017 2113111	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cyli e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam plynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate booundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Basic of Engineering Experimentals Project L	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z	4 ch as theory ain tensors constitutive rms of the systems is ses function action on a is presented 4 3
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083 2113017 2113111	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylii e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam oblynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate oconcentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Basic of Engineering Experimentals Project I.	ZK hanics courses sur s of stress and stra r, postulates the cr on expressed in te ndrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z	4 ch as theory ain tensors constitutive rms of the systems is ass function action on a is presented 4 3 5
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083 2113017 2113111 2113112	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mecure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tensor r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equation and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cyling e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam oblynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Project I. Project II.	ZK hanics courses suc s of stress and stra r, postulates the co on expressed in te hdrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z	4 ch as theory ain tensors constitutive rms of the systems is ass function action on a is presented 4 3 5 5
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2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight to 2111083 2113017 2113111 2113112 2113113 2113998	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mecure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tensor r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equation and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cyling e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam oblynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Project I. Project II. Project III. Diploma Project III. Diploma Project	ZK hanics courses sur s of stress and stra r, postulates the co on expressed in te ndrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z Z Z Z	4 ch as theory ain tensors constitutive rms of the systems is ess function action on a is presented 4 3 5 5 5 10 10
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083 2113017 2113111 2113112 2113113 2113998 2121016	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mecure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tensor r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equation and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cyling e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam oblynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Project I. Project II. Project III. Diploma Project Diploma Project	ZK hanics courses sur s of stress and stra r, postulates the co on expressed in te hdrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z Z Z Z Z Z	4 ch as theory ain tensors constitutive rms of the systems is ass function action on a is presented 4 3 5 5 5 10 10 4
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083 2113017 2113111 2113112 2113113 2113998 2121016 The study subject at	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mecure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definitions r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tensor r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equation and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylin e airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam oblynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Project I. Project II. Project II. Diploma Project Diploma Project Theoretical Fluid Mechanics Theoretical Fluid Mechanics	ZK hanics courses sur s of stress and stra r, postulates the co on expressed in te hadrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z Z Z Z Z Z Z Z Z K n fluids characteris	4 ch as theory ain tensors constitutive rms of the systems is ass function action on a is presented 4 3 5 5 10 10 4 tics, various
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight to 2111083 2113017 2113111 2113112 2113113 2113998 2121016 The study subject a description method	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec ure mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definition r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cylin e Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam objundial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentrate obundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Basic of Engineering Experimentals Project I. Project II. Diploma Project Diploma Project II. Diploma Project Theoretical Fluid Mechanics	ZK hanics courses sur s of stress and stra r, postulates the co on expressed in te hadrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z Z Z Z Z Z K n fluids characteris ristics for incompre	4 ch as theory ain tensors constitutive rms of the systems is ass function action on a is presented 4 3 5 5 10 10 4 tics, various assible flow.
2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight the 2111083 2113017 2113111 2113112 2113113 2113998 2121016 The study subject ar description method 2121043	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity.It also provides the foundation for pursuing other solid mec tre mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definition t theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tenso r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Beltrami-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in cartesian and cyli a Airy stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam olynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentra coundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Basic of Engineering Experimentals Project II. Project II. Project III. Diploma Project Theoretical Fluid Mechanics aim is to expand the students knowledge gained from the previous subject Thermomechanics Alfa. The attention is focussed namely of ds of fluid dynamics under low and high Re number values, boundary layer characteristics and its stability and complex flow characte Computational Fluid Mechanics	ZK hanics courses sur s of stress and stra r, postulates the co on expressed in te hadrical coordinate using the Airy stre ated vertical force a n solid mechanics in ZK Z Z Z Z Z Z Z X n fluids characteris ristics for incompre ZK	4 ch as theory ain tensors constitutive rms of the systems is ass function action on a is presented 4 3 5 5 10 10 4 tics, various assible flow. 4
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2111049 The objective of thi of plasticity, fractu- used in the linear relations for linear displacement vec considered andthe in the form of a po- horizontal straight to 2111083 2113017 2113111 2113112 2113113 2113998 2121016 The study subject and description method 2121043 This course exter pi 2121055 The aim of the cour the findings in the study subjects the findings in the study 2123018 The course exter 2123111 The aim of the cour according to requise suitable combination	Theory of elasticity s course is an introduction to the theory and applications of linear elasticity. It also provides the foundation for pursuing other solid mec re mechanics, composite structures, theory of plates and shells or continuum mechanics. This course introduces the basic definition r theory of elasticity, determines the principal stress and strain, derives equilibrium equations, compatibility conditions for strain tensor r elastic material (generalized Hooke's law). The governing differential equations of elasticity are derived including the Navier's equati tor and the Bettman-Michell's equation expressed in terms of the stress tensor. Next, two-dimensional problems in catesian and cylic a Ary stress function is introduced for the solution of these problems. A few useful application are studied such as bending of a beam obynomial, the stress distibution in a plate with small circular hole submitted to a uniform tension, the stress distibution for a concentre soundary, the stress distibution in a wedge due to a concentrated force at its apex. Finally, a brief introduction to the energy principles in including the principles of virtual displacements and virtual forces. Continuum Mechanics Basic of Engineering Experimentals Project II. Project II. Project II. Project II. Project II. Computational Fluid Mechanics in is to expand the students knowledge gained from the previous subject Thermomechanics Alfa. The attention is focussed namely or its of fluid dynamics under low and high Re number values, boundary layer characteristics and its stability and complex flow characte Computational Fluid Mechanics Gas Dynamics res is to expand the students' knowledge gained from the previous course Thermomechanics Alfa in the areas of the real gas thermo ermodynamics, multiphase- and multicomponent system characteristics and thermodynamics cycles of the real metardionarian Gas Dynamics aris to expand the students' knowledge gained from the previous Cause Thermomechanics values of the real ages thermo eremodynamics,	ZK hanics courses suc s of stress and stra r, postulates the co on expressed in te hadrical coordinate using the Airy stre ated vertical force a n solid mechanics i ZK Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z	4 ch as theory ain tensors ponstitutive rms of the systems is ess function action on a is presented 4 3 5 5 10 10 4 tics, various essible flow. 4 generalizes sional flows. 2 ationary, 5 mechanism o master a tact hours.

2123112	Project II.	Z	5		
The aim of the co	ced work with cont	emporary			
means of engineering analysis from commercial programs of FEM and fluid analysis, through Matlab to creation of in-house programs. The project continues and extends the knowledge					
	acquired in subjects taught in the 2nd semester.				
2123113	Project III.	Z	10		
This project is und	erstood as preparation for the diploma thesis. The topic of the project and the way of its realization and the scope of the work is given	1 by the pre-determ	nined head		
of the thesis so that	it the student can follow it in his / her thesis. Completion of the project must always be verified by submitting a written report. Typically	the project work c	an include:		
state of the art res	earch acquiring theoretical and practical materials by compilation of literature, by visiting optional lectures, taking from potential parti	hers. mastering the	means for		
0.400.000	numerical or experimental modeling preparation and realization of experiments preparation of numerical models programming ar	a more	4.0		
2123998	Diploma Thesis	<u> </u>	10		
I ne diploma thes	is is a final independent work examining the ability of independent logical technical thinking, orientation in the given problem, work w	ith technical docun	nents and		
04.44.000	application of acquired medicincal knowledge of students, which ends by submitting a written work in the prescribed format				
2141093	MICTOPIECTIONICS		3 d protocolo		
Basic characteristic	s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, DA and AD converte	rs, cooling, lines an	id protocols		
2142027	Cleatrical Engineering for Applied Machanics, microprocessor system applications.	47			
Z14ZUZ7	Electrical Engineering for Applied Mechanics		3 anotio field		
approximative solut	course is to give the student knowledge about unletent types of electrical drives for mechatoric systems and them practical use, with	tromagnote Drives	for rotating		
motion DC motor	ion. The under so intera and rotating drivers, Lieuronaginets supplied by AC and DC power. Statut and spraintes parameters of electronic and spraintes parameters of electronic and spraintes parameters of electronic and spraintes	nomagnets. Drives	on of their		
	static and dynamic properties. Using MATLAB for drivers behaviour modelling.				
2311019	Synthesis and Optimization of Mechanical Systems	ZK	3		
2311074	Vibrations of Mechanical Systems	ZK	4		
2311075	Mechanics of Mechanisms	ZK	4		
2311076	Simulation of Mechatronic Systems	ZK	3		
2311079	Statistical Mechanics	ZK	4		
2311084	Advanced Dynamics	ZK	3		
2311091	System Identification	ZK	3		
2312017	Controlled mechanical systems I.	KZ	3		
2313111	Project I.	Z	5		
2313112	Project II.	Z	5		
2313113	Project III.	Z	10		
	Individual asignment				
2313998	Diploma project	Z	10		
	individual assignment	'			
2383062	Budget and Project Economic Assessment	Z	2		
The goal of the cou	rse is to improve the knowledge gained within the basic bachelor's degree course Management and Economics of the Enterprise. The	e course focuses	orimarily on		
deepening of basic	c knowledge and skills in the creation and evaluation of the operational budget, proper preparation and evaluation of costing model for	or manufactured pro	oducts and		
the economic eval	luation of an investment project, as it corresponds to contemporary knowledge and the development of management methods and te	chniques. Students	s specify a		
simple fictional indu	istrial or engineering company or its sub-section (preferably inspired by their practical experience, internships or training program in re-	al company). The fir	st student's		
task is to prepare a	a detailed plan and budget of a project (e.g. new product development, product or process innovation, etc.) focused on improvement (or profitability, comp			
departies departies of t	or effectiveness of the company. The second task is cost calculation for chosen calculation unit. Last task within this course is the evaluation of economical effectiveness of the project				
described within t	The misi task. The dynamic methods like inel Present value (NPV), internal kate of keturn (IKK) or Discounted Payback Period (DPP).	are used for this e	ะงสเนลแอก.		
1	The quality of realization and presentation of the task's outputs together with the results of the test decides on granting / denial o	i creait.			

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-06-04, time 22:09.