Study plan

Name of study plan: 04 109 NSTI DLTT 2012 zam ení MV

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: 120 Elective courses credits: 4 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: 113 The role of the block: P

Code of the group: 12NS*1P-DLT-MV Name of the group: 2012 NSTI 1.sem povinné DLTT - MV Requirement credits in the group: In this group you have to gain 25 credits Requirement courses in the group: In this group you have to complete 6 courses Credits in the group: 25 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
2142008	Microelectronics	KZ	2	2P+0C+1L	*	Р
2211131	Powertrains of Motor Vehicles 1 Gabriela Achtenová	Z,ZK	5	3P+2C	*	Р

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

2142008	2008 Microelectronics					
Basic characteristics of	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, ele	of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications.					
2211131	Powertrains of Motor Vehicles 1	Z,ZK	5			
The subject clarifies the	The subject clarifies the design and basic calculations of aggregates of mechanical powertrains of passenger cars, trucks and motorcycles.					

Code of the group: 12NS*2P-DLT-MV+SM

Name of the group: 2012 NSTI 2.sem povinné DLTT - MV a SM

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 5 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
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
2211132	Powertrains of Motor Vehicles 2 Gabriela Achtenová Gabriela Achtenová Gabriela Achtenová (Gar.)	Z,ZK	5	3P+2C	*	Р
2211050	Internal Combustion Engines Fundamentals Vít Dole ek, Libor ervenka, Jan Macek Jan Macek Jan Macek (Gar.)	Z,ZK	6	4P+2C	*	Р
2211054	Theory of Vehicles Ji í Pakosta, Jan Kalivoda Jan Kalivoda Jan Kalivoda (Gar.)	Z,ZK	6	4P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12NS*2P-DLT-MV+SM Name=2012 NSTI 2.sem povinné DLTT - MV a SM

2311074	Vibrations of Mechanical Systems	ZK	4				
2211132	Powertrains of Motor Vehicles 2	Z,ZK	5				
The subject clarifies the	design and basic calculations of automatic aggregates of powertrains of passenger cars, trucks and motorcycles. 1 - Hydrod	dynamic transmis	sions 2 - Single				
planetary sets (JPS) - ir	ntroduction, graphical method 3 - JPS - kinematics, torques, efficiency 4 - JPS - calculation of JATCO 40 transmission 5 - Ne	sted planetary ge	ar sets (SPS) -				
graphical and analytical	method 6 - Nested planetary gear set (SPS) - matrix method 7 - SPS - example calculation, conditions of assembly 8 - Plan	etary gearboxes -	calculation of				
basic elements 9 - Varia	ators (CVT) 10 - Powersplit transmissions, IVT 11 - Differential, behavior when driving in a curve, efficiency 12 - Differential w	ith more degree o	f freedom 13 -				
Hydrostatic transmissio	ns 14 - Powertrains of hybrid vehicles						
2211050	Internal Combustion Engines Fundamentals	Z,ZK	6				
Fundamentals of internation	al combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas excl	hange, super- and	l turbo-charging;				
description of tools for f	uel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Engine i	maps and testing					
2211054	Theory of Vehicles	Z,ZK	6				
Description of theoretical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railway) and body. Especially from							
view point of transmissi	view point of transmission of longitudinal and lateral forces and stability.						

Code of the group: 12NS*3P-DLT-MV Name of the group: 2012 NSTI 3.sem povinné DLTT - MV 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 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
2311077	Dynamics of Vehicles Václav Bauma, Zbyn k Šika, Michael Valášek, Jan Pelikán Michael Valášek Michael Valášek (Gar.)	Z,ZK	5	3P+2C	*	Ρ
2311078	Controlled Mechanical Systems Václav Bauma, Zbyn k Šika, Michael Valášek, Zden k Neusser, Pavel Steinbauer Michael Valášek Michael Valášek (Gar.)	Z,ZK	4	3P+1C	*	Р
2211058	Computational Methods of Transport Machinery Jan Kalivoda, Ladislav Rus, Radek Tichánek, Michal Vaší ek Jan Kalivoda Jan Kalivoda (Gar.)	Z,ZK	5	3P+2C	*	Ρ

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

2311077	Dynamics of Vehicles	Z,ZK	5			
2311078	Controlled Mechanical Systems	Z,ZK	4			
2211058	Computational Methods of Transport Machinery	Z,ZK	5			
Methods for both analy	Methods for both analysis and synthesis of 3D mechanisms. Computation of elastic joining components. Effects of non-linearities. Development of both mechanical and mathematical					

models of vehicles. Basic usage of FEM. Local and global coordinate system, matrices of mass, stiffness and damping. Both explicit and implicit solver. Models of materials. Torsional vibration in combustion engines and transmissions, methods of computation. Measurement of torsional vibration. Engine valve train (both kinematics and dynamics). Engine balancing

Code of the group: 12NS*4P-DLT-MV

Name of the group: 2012 NSTI 4.sem povinné DLTT - MV Requirement credits in the group: In this group you have to gain 34 credits Requirement courses in the group: In this group you have to complete 9 courses Credits in the group: 34 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.) Z,ZK 2141124 3 2P+0C+1L Р **Electrical Equipment of Vehicles** Hybrid drives 3P+1C * 2211150 Z,ZK 4 Р Josef Morkus, Pavel Mindl Josef Morkus Josef Morkus (Gar.) Desig of Car Bodies and Frames * 2211045 ΖK 2 2P+0C Ρ Michal Vaší ek Michal Vaší ek Michal Vaší ek (Gar.) **Passive Safety of Vehicles** * 2212041 ΚZ 2 2P+0C Р Michal Vaší ek Michal Vaší ek Michal Vaší ek (Gar.) **Budget and Project Economic Assessment** 2383062 7 2 1P+2C František Freiberg, Miroslav Žilka František Freiberg František Freiberg Р (Gar.)

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

2141124	Electrical Equipment of Vehicles	Z,ZK	3				
El. Source Power Syste	El. Source Power System - Dynamo, Control. Alternator, Construction, Theory. Alternator Control - Vibrating, and Electronic Way - Accumulator Battery. Start-Motors Types and						
Construction. Start - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Converters. Servomotors and							
Electromagnets. Speed	Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study).						
2211150	Hybrid drives	Z,ZK	4				
Introduction to hybrid dr	ives, their components, including electrical machines and energy accumulators, application to different types of vehicles, em	issions hybrid driv	ve control.				
2211045	Desig of Car Bodies and Frames	ZK	2				
Types of vehicle body, b	asics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body desig	n. Initial design o	f body strength				
and elasticity							
2212041	Passive Safety of Vehicles	KZ	2				
Introduction and explan	ation of basic physics principles used in vehicle crash analysis - kinematics and dynamics of vehicle and occupant. Introducti	ion to injury biom	echanics, injury				
mechanisms and criteri	a. Overview of safety legislation. Overview and function of nowadays safety restraint system used.						
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	ises primarily on				
deepening of basic know	vledge 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	l 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	ent of profitability,	competitiveness				
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 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.						

Name of the block: Compulsory elective courses Minimal number of credits of the block: 7 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	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2.						
2043086	Czech - Preparatory Course	Z	2				
Aim: Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	mple way about				
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.						
2043083	French - Preparatory Course / FME	Z	2				
Aim: Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	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 whic	h a student meets	s 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.				
2043085	Russian - Preparatory Course / FME	Z	2				
Aim: Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	mple way about				
familiar topics. Reading	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.						
2043084	Spanish - Preparatory Course / FME	Z	2				
Aim: Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	mple way about				
familiar topics. Reading	miliar topics. Reading and comprehension of simple texts. Improvement of professional language.						

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
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 lar	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	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. Improveme	nt of professional	language.		
2041082	German - 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	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. Improveme	nt of professional	language.		
2041085	Russian - 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	either at school		
or in his/her free time an	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 speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language.					

Code of the group: 12NS*2Q-DLT-MV+SM Name of the group: 2012 NSTI 2.sem 1povvol DLTT - MV a SM Requirement credits in the group: In this group you have to gain 4 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 4 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2121043	Computational Fluid Mechanics	ZK	4	3P+0C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12NS*2Q-DLT-MV+SM Name=2012 NSTI 2.sem 1povvol DLTT - MV a SM

2121043	Computational Fluid Mechanics	ZK	4		
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.					

List of courses of this pass:

	Name of the course	Completion	Credite
2041081	English - Master Exam	ZK	1
	of Common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations which a		
	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		iguage.
2041082	German - Master Exam / FME	ZK	1
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		
	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen		anguage.
2041083	French - Master Exam / FME	ZK	1
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a state of a		
	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen		anguage.
2041084	Spanish - Master Exam / FME	ZK	1 ar at asha
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement		
2041085	Russian - Master Exam / FME	ZK	inguage. 1
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		I er at scho
	time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvemen		
2041086	Czech- Master Exam	ZK	1 1
		ZR 7	
2043081	English - Preparatory Course / FME	—	2
Ann. 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. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2		way abou
2043082		 Z	2
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		_
	time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvemen		
2043083	French - Preparatory Course / FME	7	2 2
	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	_
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	rrining in a cimple	may abov
2043084	Spanish - Preparatory Course / FME	7	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	· · · · · · · · · · · · · · · · · · ·	,
2043085	Russian - Preparatory Course / FME	Z	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	0 1	,
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 abou
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2121043	Computational Fluid Mechanics	ZK	4
This course exten	ds the knowledge gained in the course of Fluid Mechanics about the knowledge of computational fluid dynamics. Emphasis is placed	l on understandinc	the basic
pr	nciples of computational fluid dynamics based on using commercial codes. Selected problems of internal and external aerodynamics	s are solved.	
2141124	Electrical Equipment of Vehicles	Z,ZK	-
El. Source Powe		<u>ک,۲</u> ۲	3
	rr System - Dynamo, Control. Alternator, Construction, Theory. Alternator Control - Vibrating, and Electronic Way - Accumulator Batte	,	-
Construction. S	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con	ry. Start-Motors Ty	pes and
	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study).	ry. Start-Motors Ty overters. Servomot	pes and ors and
2142008	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics	ry. Start-Motors Ty overters. Servomot KZ	pes and ors and 2
2142008	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Com Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converted	ry. Start-Motors Ty overters. Servomot KZ	pes and ors and 2
2142008 asic characteristic	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Com Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications.	ry. Start-Motors Ty iverters. Servomot KZ rs, coding, lines ar	pes and ors and 2 nd protoco
2142008 asic characteristic 2211045	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Com Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames	ry. Start-Motors Ty nverters. Servomot KZ rs, coding, lines ar ZK	pes and ors and 2 nd protoco 2
2142008 asic characteristic 2211045	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Com Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames rdy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I	ry. Start-Motors Ty nverters. Servomot KZ rs, coding, lines ar ZK	pes and ors and 2 nd protoco 2
2142008 asic characteristic 2211045 Types of vehicle bo	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Com Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames rdy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity	ry. Start-Motors Ty overters. Servomot KZ rs, coding, lines ar ZK Initial design of boo	pes and ors and 2 nd protoco 2 dy strengt
2142008 asic characteristic 2211045 [ypes of vehicle bo 2211050	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames idy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals	ry. Start-Motors Ty overters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK	pes and ors and 2 nd protoco 2 dy strengt
2142008 asic characteristic 2211045 jypes of vehicle bo 2211050 undamentals of in	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange	KZ ry, Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb	pes and ors and 2 nd protoco 2 dy strengt 6 po-chargin
2142008 asic characteristic 2211045 fypes of vehicle bo 2211050 undamentals of in description	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb jine maps and test	pes and ors and 2 nd protoco 2 dy strengt 6 so-chargin ing
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles	KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK	pes and ors and 2 nd protoco 2 dy strengt 6 so-chargin ting 6
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwas	KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK	pes and ors and 2 nd protoco 2 dy strengt 6 so-chargin ting 6
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converted of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability.	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK ay) and body. Espe	pes and ors and 2 d protoco 2 dy strengt 6 bo-chargin ting 6 acially from
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo 2211058	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchang of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability. Computational Methods of Transport Machinery	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK ay) and body. Espe	pes and ors and 2 d protoco 2 dy strengt 6 bo-chargin ting 6 scially from 5
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo 2211058 lethods for both a	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converted of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchang of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Engine Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability. Computational Methods of Transport Machinery nalysis and synthesis of 3D mechanisms. Computation of elastic joining components. Effects of non-linearities. Development of both	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK ay) and body. Espe Z,ZK mechanical and m	pes and ors and 2 d protoco 2 dy strengt 6 oo-chargin ting 6 acially fror 5 athematic
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo 2211058 Methods for both a nodels of vehicles.	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converted of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchang of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Engine Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability. Computational Methods of Transport Machinery nalysis and synthesis of 3D mechanisms. Computation of elastic joining components. Effects of non-linearities. Development of both Basic usage of FEM. Local and global coordinate system, matrices of mass, stiffness and damping. Both explicit and implicit solver.	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK ay) and body. Espe Z,ZK mechanical and m Models of material	pes and ors and 2 d protoco 2 dy strengt 6 bo-chargin ting 6 acially fror 5 athematic Is. Torsion
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo 2211058 fethods for both a nodels of vehicles. bration in combus	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability. Computational Methods of Transport Machinery halysis and synthesis of 3D mechanisms. Computation of elastic joining components. Effects of non-linearities. Development of both Basic usage of FEM. Local and global coordinate system, matrices of mass, stiffness and damping. Both explicit and implicit solver. tion engines and transmissions, methods of computation. Measurement of torsional vibration. Engine valve train (both kinematics and	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK ay) and body. Espe Z,ZK mechanical and m Models of material d dynamics). Engin	pes and ors and 2 d protoco dy strengt 6 bo-chargin ting 6 cially fror 5 athematic Is. Torsion e balancir
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo 2211058 Methods for both a nodels of vehicles.	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability. Computational Methods of Transport Machinery nalysis and synthesis of 3D mechanisms. Computation of elastic joining components. Effects of non-linearities. Development of both I Basic usage of FEM. Local and global coordinate system, matrices of mass, stiffness and damping. Both explicit and implicit solver. ion engines and transmissions, methods of computation. Measurement of torsional vibration. Engine valve train (both kinematics and Powertrains of Motor Vehicles 1	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb gine maps and test Z,ZK ay) and body. Espe Z,ZK mechanical and m Models of material d dynamics). Engin Z,ZK	pes and ors and 2 d protoco 2 dy strengt 6 bo-chargin ting 6 acially fror 5 athematic Is. Torsion
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo 2211058 lethods for both a odels of vehicles. bration in combus 2211131	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability. Computational Methods of Transport Machinery nalysis and synthesis of 3D mechanisms. Computation Measurement of torsional vibration. Engine valve train (both kinematics and Basic usage of FEM. Local and global coordinate system, matrices of mass, stiffness and damping. Both explicit and implicit solver. tion engines and transmissions, methods of computation. Measurement of torsional vibration. Engine valve train (both kinematics and Powertrains of Motor Vehicles 1 The subject clarifies the design and basic calculations of aggregates of mechanical powertrains of passenger cars, trucks and motor	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb jine maps and test Z,ZK ay) and body. Espe Z,ZK mechanical and m Models of material d dynamics). Engin Z,ZK orcycles.	pes and ors and 2 d protoco dy strengt 6 bo-chargin ting 6 cially fror 4 s. Torsion e balancir 5
2142008 asic characteristic 2211045 Types of vehicle bo 2211050 undamentals of in description 2211054 Description of theo 2211058 Methods for both a nodels of vehicles. bration in combus 2211131 2211132	tart - Motor Theory and Characteristics. Ignition Systems. Battery Ignition. Magneto Ignition and Electronic Ignition. Sensors and Con Electromagnets. Speed Motors Control and Contactless Switching of Power Load. (For Traffic Engineering Study). Microelectronics s of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converter of communications, electronic and optoelectronic parts for microelectronics, microprocessor system applications. Desig of Car Bodies and Frames dy, basics of composition, parts of body design, components and accessories. Design and legislative. Methodology of body design. I and elasticity Internal Combustion Engines Fundamentals ernal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Eng Theory of Vehicles retical sources for longitudinal, vertical and directional dynamics of vehicles. Detailed description of interactions between road (railwa view point of transmission of longitudinal and lateral forces and stability. Computational Methods of Transport Machinery nalysis and synthesis of 3D mechanisms. Computation of elastic joining components. Effects of non-linearities. Development of both I Basic usage of FEM. Local and global coordinate system, matrices of mass, stiffness and damping. Both explicit and implicit solver. ion engines and transmissions, methods of computation. Measurement of torsional vibration. Engine valve train (both kinematics and Powertrains of Motor Vehicles 1	ry. Start-Motors Ty werters. Servomot KZ rs, coding, lines ar ZK Initial design of boo Z,ZK ge, super- and turb jine maps and test Z,ZK ay) and body. Espe Z,ZK mechanical and m Models of material d dynamics). Engin Z,ZK orcycles. Z,ZK	pes and ors and 2 d protoco dy strengt 6 bo-chargin ting 6 ecially fror 5 athematic Is. Torsion e balancir 5 5

basic elements 9 -	Variators (CVT) 10 - Powersplit transmissions, IVT 11 - Differential, behavior when driving in a curve, efficiency 12 - Differential with	more degree of fr	eedom 13 -
	Hydrostatic transmissions 14 - Powertrains of hybrid vehicles		
2211150	Hybrid drives	Z,ZK	4
Introduction to h	hybrid drives, their components, including electrical machines and energy accumulators, application to different types of vehicles, emi-	ssions hybrid drive	e control.
2212041	Passive Safety of Vehicles	KZ	2
Introduction and ex	planation of basic physics principles used in vehicle crash analysis - kinematics and dynamics of vehicle and occupant. Introduction	to injury biomecha	anics, injury
	mechanisms and criteria. Overview of safety legislation. Overview and function of nowadays safety restraint system used.		
2311074	Vibrations of Mechanical Systems	ZK	4
2311077	Dynamics of Vehicles	Z,ZK	5
2311078	Controlled Mechanical Systems	Z,ZK	4
2383062	Budget and Project Economic Assessment	Z	2
The goal of the cou	urse is to improve the knowledge gained within the basic bachelor's degree course Management and Economics of the Enterprise. Th	e course focuses	primarily o
deepening of basi	c knowledge and skills in the creation and evaluation of the operational budget, proper preparation and evaluation of costing model fo	r manufactured p	roducts and
the economic eva	luation of an investment project, as it corresponds to contemporary knowledge and the development of management methods and te	chniques. Student	ts specify a
simple fictional indu	ustrial or engineering company or its sub-section (preferably inspired by their practical experience, internships or training program in rea	al company). The fi	irst student
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 c	of profitability, com	petitivenes
or effectiveness of	the company. The second task is cost calculation for chosen calculation unit. Last task within this course is the evaluation of economic	cal effectiveness of	of the proje
described within t	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 and presentation of the task's outputs together with the results of the test decides on granting / denial of	f credit.	

For updated information see <u>http://bilakniha.cvut.cz/en/FF.html</u> Generated: day 2025-06-15, time 01:06.