Study plan

Name of study plan: 06 109 NSTI DLTT 2012 zam ení KV

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Mechanical Engineering

Type of study: Follow-up master

Required credits: 432

Elective courses credits: -301 Sum of credits in the plan: 131

Note on the plan:

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 429

The role of the block: P

Code of the group: 12NS*1P-DLT-KV

Name of the group: 2012 NSTI 1.sem povinné DLTT - KV

Requirement credits in the group: In this group you have to gain 27 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 27 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
2213018	Principles of Design - Rail Vehicles Josef Kolá Josef Kolá (Gar.)	Z	2	2P+0C	*	Р

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

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2142008	Microelectronics	KZ	2				
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, elec	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.						
2213018	Principles of Design - Rail Vehicles	Z	2				
Basic terminology and nomenclature of rail vehicles parts. Principles of railway vehicles components.							

Code of the group: 12NS*2P-DLT-KV

Name of the group: 2012 NSTI 2.sem povinné DLTT - KV

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

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

Credits in the group: 30 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2311074	Vibrations of Mechanical Systems Václav Bauma, Zbyn k Šika, Michael Valášek, Jan Zav el Michael Valášek Václav Bauma (Gar.)	ZK	4	3P+0C	*	Р
2211132	Powertrains of Motor Vehicles 2 Gabriela Achtenová Gabriela Achtenová (Gar.)	Z,ZK	5	3P+2C	*	Р

2211050	Internal Combustion Engines Fundamentals Vit Dole ek, Libor ervenka, Jan Macek, Radek Tichánek, Old ich Vitek Jan Macek Jan Macek (Gar.)	Z,ZK	6	4P+2C	*	Р
2211054	Theory of Vehicles Ji (Pakosta, Jan Kaliyoda Jan Kaliyoda (Gar.)	Z,ZK	6	4P+2C	*	Р

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

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 - Hydrodynamic transmissions 2 - Single planetary sets (JPS) - introduction, graphical method 3 - JPS - kinematics, torques, efficiency 4 - JPS - calculation of JATCO 40 transmission 5 - Nested planetary gear sets (SPS) graphical and analytical method 6 - Nested planetary gear set (SPS) - matrix method 7 - SPS - example calculation, conditions of assembly 8 - Planetary gearboxes - calculation of basic elements 9 - Variators (CVT) 10 - Powersplit transmissions, IVT 11 - Differential, behavior when driving in a curve, efficiency 12 - Differential with more degree of freedom 13 -Hydrostatic transmissions 14 - Powertrains of hybrid vehicles

2211050 Internal Combustion Engines Fundamentals Z,ZK

Fundamentals of internal combustion engines (ICE): principles of performance, combustion processes, flame types, formation of pollutants, gas exchange, super- and turbo-charging; description of tools for fuel injection, mixture formation, valve gears, combustion realization, exhaust aftertreatment, lubrication and cooling. Engine maps and testing

Theory of Vehicles

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 transmission of longitudinal and lateral forces and stability.

Code of the group: 12NS*3P-DLT-KV

Name of the group: 2012 NSTI 3.sem povinné DLTT - KV

Requirement credits in the group: In this group you have to gain 32 credits

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

Credits in the group: 32 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
2211146	Drives of Railway Vehicles Josef Kolá Josef Kolá (Gar.)	Z,ZK	4	3P+1C	*	Р
2211145	Railway Rolling Stock Running Gears Josef Kolá, Tomáš Heptner Josef Kolá Tomáš Heptner (Gar.)	Z,ZK	5	4P+1C	*	Р
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 Radek Tichánek, Ladislav Rus, Václav Zoul, Michal Vaší ek Ladislav Rus Ladislav Rus (Gar.)	Z,ZK	5	3P+2C	*	Р

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

2211146	Drives of Railway Vehicles	Z,ZK	4
Basic design of drive of			
2211145	Railway Rolling Stock Running Gears	Z,ZK	5
Concepts of rail vehicl			
2311078	Controlled Mechanical Systems	Z,ZK	4
2211058	Computational Methods of Transport Machinery	Z,ZK	5

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-KV

Name of the group: 2012 NSTI 4.sem povinné DLTT - KV

Requirement credits in the group: In this group you have to gain at least 340 credits (at most 34)

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

Credits in the group: 340

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
2141126	Rail Vehicles Electrical Equipment	Z,ZK	2	2P+0C+1L	*	Р
2211052	Design of Railway Vehicles Josef Kolá, Tomáš Heptner Josef Kolá Josef Kolá (Gar.)	ZK	4	4P+0C	*	Р
2212020	Accesories of Railway Vehicles Josef Kolá Josef Kolá (Gar.)	KZ	2	3P+0C	*	Р

2383062	Budget and Project Economic Assessment Miroslav Žilka Miroslav Žilka (Gar.)	Z	2	1P+2C	*	Р
2213012	Manufacturing technology of Railway Vehicles Josef Kolá Josef Kolá (Gar.)	Z	2	2P+0C	*	Р
2211043	Computational Methods and Testing of Ralway Vehicles Tomáš Heptner, Ladislay, Rus Jan Kaliyoda, Ladislay, Rus (Gar.)	Z,ZK	4	3P+1C	*	Р

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

2141126	Rail Vehicles Electrical Equipment	Z,ZK	2				
Equation of motion and	mechanical properties of electrical drive, losses and dimensioning of electrical drive, general properties and control of DC driv	es, general prope	rties and control				
of drives with asynchron	of drives with asynchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters, thyristor rectifiers, feedback						
control of electrical drive	control of electrical drive, EMC of electrical drive						
2211052	Design of Railway Vehicles	ZK	4				
Basic concepts of railwa	ay vehicles design, design of railway vehicles body, chassis, underframe, running gear, auxiliary equipment, heating, ventilation	on and air condition	oning plant.				
2212020	Accesories of Railway Vehicles	KZ	2				
Deepening the knowled	ge of designing accesories of Railway Vehiles and interiors of passager coach and dieselelectric oder electrics units, trams a	nd subway cars.					
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	for manufactured	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. Stude	ents specify a				
simple fictional industria	l or engineering company or its sub-section (preferably inspired by their practical experience, internships or training program in	real company). T	he first student's				
task is to prepare a deta	ailed plan and budget of a project (e.g. new product development, product or process innovation, etc.) focused on improveme	nt of profitability, o	competitiveness				
or effectiveness of the o	ompany. The second task is cost calculation for chosen calculation unit. Last task within this course is the evaluation of econo	mical effectivene	ess of the project				
described within the firs	t task. The dynamic methods like Net Present Value (NPV), Internal Rate of Return (IRR) or Discounted Payback Period (DPI) are used for the	is 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.						
2213012	Manufacturing technology of Railway Vehicles	Z	2				
Getting to know the diffe	erent stages of the production cycle of Rail Vehicles. Basic understanding of the technology of Rail Vehicles and their component	ents.	'				
2211043	Computational Methods and Testing of Ralway Vehicles	Z,ZK	4				
Calculation of running s	ability of a railway vehicle. Optimization of damping and suspension of the vehicle. Calculation of stable areas of lateral oscillat	ion. Construction	of mathematical				
models of railway vehicle	models of railway vehicles with multiple degrees of freedom excited by unevenness of the track of harmonic run. Non-linear parts of suspension and damping. Calculation of force-feedbacks						
and acceleration, on the	and acceleration, on the bogie and the body of the vehicle, according to harmonic excitation. Random process theory considering the random excitation of railway vehicles. Calculation						
of correlation functions,	of correlation functions, cross-correlation functions and power spectral density. Construction of mathematical models of railway vehicles in 3D. Calculation of feedbacks of 3D models						

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 3

The role of the block: PV

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

Name of the group: 2012 N 3.sem povinná jazyková výuka

on random excitation. Mass-continuum oscillation. Bending oscillation of the body of the vehicle.

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 Eliška Vítková, Ilona Šimice, Michaela Schusová, Veronika Kratochvílová, Hana Volejníková, Nina Procházková Ayyub 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 Michaela Schusová (Gar.)	Z	2	0P+2C	*	PV
2043082	German - Lower Intermediate Course Eliška Vítková, Michaela Schusová, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	Z	2	0P+2C	*	PV
2043085	Russian - Preparatory Course / FME Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Eliška Vítková	Z	2	0P+2C	*	PV
2043084	Spanish - Preparatory Course / FME Eliška Vítková, 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

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 them. Writing in a simple way abou						
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.					
2043083	French - Preparatory Course / FME	Z	2			
Aim: Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	nple way about			
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.					
2043082	German - Lower Intermediate Course	Z	2			
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.			
2043085	Russian - Preparatory Course / FME	Z	2			
Aim: Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	nple way about			
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.					
2043084	Spanish - Preparatory Course / FME	Z	2			
Aim: Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	mple way about			
familiar topics. Reading	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 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 Eliška Vítková, Ilona Šimice, Michaela Schusová, Veronika Kratochvílová, Hana Volejníková, Nina Procházková Ayyub Nina Procházková Ayyub	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 Eliška Vítková, Michaela Schusová, Dušana Jirovská Michaela Schusová (Gar.)	ZK	1	0P+0C	*	PV
2041082	German - Master Exam / FME Eliška Vítková, Michaela Schusová, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	ZK	1	0P+0C	*	PV
2041085	Russian - Master Exam / FME Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská, Petr Zitko Eliška Vítková	ZK	1	0P+0C	*	PV
2041084	Spanish - Master Exam / FME Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková	ZK	1	0P+0C	*	PV

Characteristics	of the courses of this group of Study Plan: Code=12N**3QJZ Name=2012 N 3.sem povinná	jazyková zko	uška
2041081	English - Master Exam	ZK	1
Mapped to the level	of Common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations whic	h 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 lan	guage.
2041086	Czech- Master Exam	ZK	1
2041083	French - Master Exam / FME	ZK	1
Mapped to the level	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whic	ch a student meets	either at school
or in his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	ent 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 whic	ch a student meets	either at schoo
or in his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme	ent of professional	language.
2041085	Russian - Master Exam / FME	ZK	1
Mapped to the level	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whic	ch a student meets	either at school
or in his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme	ent 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 whic	ch a student meets	either at school
or in his/her free tim	e and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improveme	ent of professional	language.

List of courses of this pass:

	Name of the course	Completion	Credits
2041081	English - Master Exam	ZK	1
	el of Common European Framework of Reference: A2. Aim: Understanding clearly what is spoken about everyday situations which a		
	te and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2041082	German - Master Exam / FME I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	ZK	1 or at school
	time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvemen		
2041083	French - Master Exam / FME	ZK	1
	ا I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		er at school
	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen		
2041084	Spanish - Master Exam / FME	ZK	1
Mapped to the leve	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	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	nt of professional la	inguage.
2041085	Russian - Master Exam / FME	ZK	1
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		
or in his/her free	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen	nt of professional la	inguage.
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.		way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. European level A1 - A2		
2043082	German - Lower Intermediate Course	Z	2
	l of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a setting and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvemen		
		7	2
2043083	French - Preparatory Course / FME g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	
Aiii. Onderstandii	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	withing in a simple	way about
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.		_
, and onderedarian	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		ay abbat
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.		
2141126	Rail Vehicles Electrical Equipment	Z.ZK	2
Carretion of metion	, ,	,	
	and mechanical properties of electrical drive, losses and dimensioning of electrical drive, general properties and control of DC drives,	general properties	
	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters	general properties	
of drives with asyr	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive	general properties , thyristor rectifiers	s, feedback
of drives with asyr	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics	general properties s, thyristor rectifiers KZ	s, feedback
of drives with asyr	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics so of logic circuits and programmable logical systems, input and output circuits - voltage and current matching, D/A and A/D converters.	general properties s, thyristor rectifiers KZ	s, feedback
of drives with asyr 2142008 Basic characteristic	chronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics so 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.	general properties s, thyristor rectifiers KZ rs, coding, lines ar	s, feedback 2 nd protocols
of drives with asyr 2142008 Basic characteristic 2211043	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics as 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. Computational Methods and Testing of Ralway Vehicles	general properties thyristor rectifiers KZ rs, coding, lines ar	2 and protocols
2142008 Basic characteristic 2211043 Calculation of runn	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics cs 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. Computational Methods and Testing of Ralway Vehicles ng stability of a railway vehicle. Optimization of damping and suspension of the vehicle. Calculation of stable areas of lateral oscillation.	general properties thyristor rectifiers KZ rs, coding, lines ar Z,ZK Construction of m	2 ad protocols 4 athematical
2142008 Basic characteristic 2211043 Calculation of runn models of railway ve	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics as 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. Computational Methods and Testing of Ralway Vehicles	general properties thyristor rectifiers KZ rs, coding, lines ar Z,ZK Construction of m	2 ad protocols 4 athematical e-feedbacks
2142008 Basic characteristic 2211043 Calculation of runn models of railway ve and acceleration, o	nchronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics as 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. Computational Methods and Testing of Ralway Vehicles In g stability of a railway vehicle. Optimization of damping and suspension of the vehicle. Calculation of stable areas of lateral oscillation. Schicles with multiple degrees of freedom excited by unevenness of the track of harmonic run. Non-linear parts of suspension and damping.	general properties thyristor rectifiers KZ rs, coding, lines ar Z,ZK Construction of m Calculation of forcof railway vehicles.	2 ad protocols 4 athematical e-feedbacks Calculation
2142008 Basic characteristic 2211043 Calculation of runn models of railway ve and acceleration, o	control of electrical drive, EMC of electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics cs 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. Computational Methods and Testing of Ralway Vehicles In g stability of a railway vehicle. Optimization of damping and suspension of the vehicle. Calculation of stable areas of lateral oscillation, whicles with multiple degrees of freedom excited by unevenness of the track of harmonic run. Non-linear parts of suspension and damping, in the bogie and the body of the vehicle, according to harmonic excitation. Random process theory considering the random excitation of the control of the	general properties thyristor rectifiers KZ rs, coding, lines ar Z,ZK Construction of m Calculation of forc of railway vehicles. on of feedbacks of	2 ad protocols 4 athematical e-feedbacks Calculation
2142008 Basic characteristic 2211043 Calculation of runn models of railway ve and acceleration, o	Achronous and synchronous motors, using of semiconductor converters in electrical drives, choppers, inverters, frequency converters control of electrical drive, EMC of electrical drive Microelectronics as 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. Computational Methods and Testing of Ralway Vehicles In g stability of a railway vehicle. Optimization of damping and suspension of the vehicle. Calculation of stable areas of lateral oscillation, whicles with multiple degrees of freedom excited by unevenness of the track of harmonic run. Non-linear parts of suspension and damping, in the bogie and the body of the vehicle, according to harmonic excitation. Random process theory considering the random excitation of ions, cross-correlation functions and power spectral density. Construction of mathematical models of railway vehicles in 3D. Calculation	general properties thyristor rectifiers KZ rs, coding, lines ar Z,ZK Construction of m Calculation of forcof railway vehicles.	2 ad protocols 4 athematical e-feedbacks Calculation
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2211132	Powertrains of Motor Vehicles 2	Z,ZK	5
The subject clarifies the de	esign and basic calculations of automatic aggregates of powertrains of passenger cars, trucks and motorcycles. 1 - Hydrodyr	amic transmission	s 2 - Single
planetary sets (JPS) - intro	oduction, graphical method 3 - JPS - kinematics, torques, efficiency 4 - JPS - calculation of JATCO 40 transmission 5 - Neste	d planetary gear s	ets (SPS)
graphical and analytical m	ethod 6 - Nested planetary gear set (SPS) - matrix method 7 - SPS - example calculation, conditions of assembly 8 - Planet	ary gearboxes - ca	Iculation of
basic elements 9 - Variator	rs (CVT) 10 - Powersplit transmissions, IVT 11 - Differential, behavior when driving in a curve, efficiency 12 - Differential with	more degree of fre	edom 13 -
	Hydrostatic transmissions 14 - Powertrains of hybrid vehicles		
2211145	Railway Rolling Stock Running Gears	Z,ZK	5
	Concepts of rail vehicle running gears. Basic theory, concepts and design of related subsystems		
2211146	Drives of Railway Vehicles	Z,ZK	4
'	Basic design of drive concepts for railway vehicles and their influences on adhesion and driving properties		
2212020	Accesories of Railway Vehicles	KZ	2
Deepening the kno	owledge of designing accesories of Railway Vehiles and interiors of passager coach and dieselelectric oder electrics units, tra	ims and subway ca	ars.
2213012	Manufacturing technology of Railway Vehicles	Z	2
Getting to kn	ow the different stages of the production cycle of Rail Vehicles. Basic understanding of the technology of Rail Vehicles and the	eir components.	
2213018	Principles of Design - Rail Vehicles	Z	2
'	Basic terminology and nomenclature of rail vehicles parts. Principles of railway vehicles components.		
2311074	Vibrations of Mechanical Systems	ZK	4
2311078	Controlled Mechanical Systems	Z,ZK	4
2383062	Budget and Project Economic Assessment	Z	2
The goal of the course is to	improve the knowledge gained within the basic bachelor's degree course Management and Economics of the Enterprise Th	ne course focuses	primarily or

The goal of the course is to improve the knowledge gained within the basic bachelor's degree course Management and Economics of the Enterprise. The course focuses primarily on deepening of basic knowledge and skills in the creation and evaluation of the operational budget, proper preparation and evaluation of costing model for manufactured products and the economic evaluation of an investment project, as it corresponds to contemporary knowledge and the development of management methods and techniques. Students specify a simple fictional industrial or engineering company or its sub-section (preferably inspired by their practical experience, internships or training program in real company). The first student's task is to prepare a detailed plan and budget of a project (e.g. new product development, product or process innovation, etc.) focused on improvement 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 and presentation of the task's outputs together with the results of the test decides on granting / denial of credit.

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2024-05-19, time 03:20.