

Study plan

Name of study plan: 08 109 NSTI DLTT 2012 zam ení TT

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: 123

Elective courses credits: 4

Sum of credits in the plan: 127

Note on the plan:

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 120

The role of the block: P

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

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

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2142008	Microelectronics	KZ	2	2P+0C+1L	*	P
2133111	Project I.	Z	5	0P+5C	*	P
2211131	Powertrains of Motor Vehicles 1 <i>Gabriela Achtenová</i>	Z,ZK	5	3P+2C	*	P
2131034	Tribology	Z,ZK	4	3P+1C	*	P

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

2142008	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.	KZ	2			
2133111	Project I.	Z	5			
2211131	Powertrains of Motor Vehicles 1 The subject clarifies the design and basic calculations of aggregates of mechanical powertrains of passenger cars, trucks and motorcycles.	Z,ZK	5			
2131034	Tribology	Z,ZK	4			

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

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

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2311074	Vibrations of Mechanical Systems <i>Václav Bauma, Zbyněk Šíka, Michael Valášek, Jan Zavel Václav Bauma Václav Bauma (Gar.)</i>	ZK	4	3P+0C	*	P
2133112	Projekt II.	Z	5	0P+5C	*	P

2211132	Powertrains of Motor Vehicles 2 <i>Gabriela Achtenová Gabriela Achtenová Gabriela Achtenová (Gar.)</i>	Z,ZK	5	3P+2C	*	P
2131035	Zheory of Transport Machines I. <i>Zden k ešpíro Zden k ešpíro Zden k ešpíro (Gar.)</i>	Z,ZK	6	4P+2C	*	P
2211054	Theory of Vehicles <i>Ji í Pakosta, Jan Kalívoda Jan Kalívoda (Gar.)</i>	Z,ZK	6	4P+2C	*	P

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

2311074	Vibrations of Mechanical Systems	ZK	4
2133112	Projekt II.	Z	5
2211132	Powertrains of Motor Vehicles 2 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	Z,ZK	5
2131035	Zheory of Transport Machines I.	Z,ZK	6
2211054	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.	Z,ZK	6

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

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

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2133113	Project III.	Z	10	0P+10C	*	P
2131118	Steel Structure Design <i>Zden k ešpíro Zden k ešpíro Zden k ešpíro (Gar.)</i>	Z,ZK	4	3P+1C	*	P
2131036	Theory of Transport machines II.	Z,ZK	4	2P+1C	*	P
2131101	Agricultural Machines	Z,ZK	4	2P+1C	*	P

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

2133113	Project III.	Z	10
2131118	Steel Structure Design	Z,ZK	4
2131036	Theory of Transport machines II.	Z,ZK	4
2131101	Agricultural Machines	Z,ZK	4

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

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

Requirement credits in the group: In this group you have to gain 35 credits

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

Credits in the group: 35

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
2133998	Diploma Thesis	Z	10	0P+3C	*	P
2131040	Materials and Technological Characteries of Constructions	ZK	4	4P+0C	*	P
2132114	Project IV.	KZ	5	0P+10C	*	P
2141054	Controlled Electrical Drives	Z,ZK	3	2P+0C+1L	*	P
2383062	Budget and Project Economic Assessment <i>Miroslav Žilka Miroslav Žilka (Gar.)</i>	Z	2	1P+2C	*	P
2311078	Controlled Mechanical Systems <i>Václav Bauma, Zbyn k Šika, Michael Valášek, Zden k Neusser, Pavel Steinbauer Michael Valášek Michael Valášek (Gar.)</i>	Z,ZK	4	3P+1C	*	P
2131037	Testing of Transport Machines	ZK	4	3P+0C	*	P
2131041	Processing of Technical Documentation	ZK	2	2P+0C	*	P

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

2133998	Diploma Thesis	Z	10
2131040	Materials and Technological Characteristics of Constructions	ZK	4
2132114	Project IV.	KZ	5
2141054	Controlled Electrical Drives Equation of motion and mechanical properties of electrical drive, losses and dimensioning of electrical drive, general properties and control of DC drives, general properties and control 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, EMC of electrical drive	Z,ZK	3
2383062	Budget and Project Economic Assessment 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.	Z	2
2311078	Controlled Mechanical Systems	Z,ZK	4
2131037	Testing of Transport Machines	ZK	4
2131041	Processing of Technical Documentation	ZK	2

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

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

Characteristics of the courses of this group of Study Plan: Code=12N3Q--JV Name=2012 N 3.sem povinná jazyková výuka**

2043081	English - Preparatory Course / FME 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.	Z	2
2043086	Czech - Preparatory Course 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.	Z	2
2043083	French - Preparatory Course / FME 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.	Z	2
2043082	German - Lower Intermediate Course 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 comprehension of simple texts. Improvement of professional language.	Z	2
2043085	Russian - Preparatory Course / FME 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.	Z	2

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 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 Ilona Šimice, Michaela Schusová, Veronika Kratochvílová, Eliška Vítková, 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 Michaela Schusová, Eliška Vítková, Dušana Jirovská Dušana Jirovská Michaela Schusová (Gar.)	ZK	1	0P+0C	*	PV
2041082	German - Master Exam / FME Michaela Schusová, Eliška Vítková, Petr Laurich, Jaroslava Kommová Jaroslava Kommová	ZK	1	0P+0C	*	PV
2041085	Russian - Master Exam / FME Michaela Schusová, Eliška Vítková, Hana Volejníková, Dušana Jirovská, Petr Zitko Eliška Vítková	ZK	1	0P+0C	*	PV
2041084	Spanish - Master Exam / FME Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková	ZK	1	0P+0C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12N3Q--JZ Name=2012 N 3.sem povinná jazyková zkouška**

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 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.			
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 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 comprehension of simple texts. Improvement 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 comprehension of simple texts. Improvement 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 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 comprehension of simple texts. Improvement 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 comprehension of simple texts. Improvement of professional language.			

List of courses of this pass:

Code	Name of the course	Completion	Credits
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 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.			
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 comprehension of simple texts. Improvement of professional language.			
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 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 comprehension of simple texts. Improvement 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 comprehension of simple texts. Improvement 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 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 comprehension of simple texts. Improvement of professional language.			
2041086	Czech- Master Exam	ZK	1
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.			
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 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 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 them. Writing in a simple 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.			
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 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: 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.			
2131034	Tribology	Z,ZK	4
2131035	Ztheory of Transport Machines I.	Z,ZK	6
2131036	Theory of Transport machines II.	Z,ZK	4
2131037	Testing of Transport Machines	ZK	4
2131040	Materials and Technological Characteries of Constructions	ZK	4
2131041	Processing of Technical Documentation	ZK	2
2131101	Agricultural Machines	Z,ZK	4
2131118	Steel Structure Design	Z,ZK	4
2132114	Project IV.	KZ	5
2133111	Project I.	Z	5
2133112	Projekt II.	Z	5
2133113	Project III.	Z	10
2133998	Diploma Thesis	Z	10
2141054	Controlled Electrical Drives	Z,ZK	3
Equation of motion and mechanical properties of electrical drive, losses and dimensioning of electrical drive, general properties and control of DC drives, general properties and control 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, EMC of electrical drive			
2142008	Microelectronics	KZ	2
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.			
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 transmission of longitudinal and lateral forces and stability.			
2211131	Powertrains of Motor Vehicles 1	Z,ZK	5
The subject clarifies the design and basic calculations of aggregates of mechanical powertrains of passenger cars, trucks and motorcycles.			
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			
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. 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.			

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