Recomended pass through the study plan

Name of the pass: Specialization Electrical Power Engineering - Passage through study

Faculty/Institute/Others: Faculty of Electrical Engineering

Department:

Pass through the study plan: Electrical Engineering, Power Engineering and Management - Electrical Power

Engineering

Branch of study guranteed by the department: Welcome page

Guarantor of the study branch:

Program of study: Electrical Engineering, Power Engineering and Management

Type of study: Follow-up master combined

Note on the pass:

Coding of roles of courses and groups of courses:

P - compulsory courses of the program, PO - compulsory courses of the branch, Z - compulsory courses, S - compulsory elective courses, PV - compulsory elective courses, F - elective specialized courses, V - elective courses, T - physical training courses

Coding of ways of completion of courses (KZ/Z/ZK) and coding of semesters (Z/L):

KZ - graded assesment, Z - assesment, ZK - examination, L - summer semester, Z - winter semester

Number of semester: 1

| 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 |
|------------|---|------------|---------|----------|----------|------|
| BEZM | Safety in Electrical Engineering for a master's degree Vladimir K la, Radek Havlí ek, Ivana Nová, Josef ernohous, Pavel Mlejnek Radek Havlí ek Vladimír K la (Gar.) | Z | 0 | 2BP+2BC | Z | Р |
| BD1M15IAP | Engineering Applications | Z,ZK | 5 | 14KP+6KC | Z | Р |
| BD1M13JAS1 | Quality and Reliability | Z,ZK | 6 | 14KP+6KC | Z | Р |
| BD1M15PPE1 | Elements and Operation of Electrical Power Systems | Z,ZK | 5 | 14KP+6KS | Z | Р |
| BD1M14SSE | Machinery and Structures of Power Plants | Z,ZK | 5 | 14KP+6KC | Z | Р |
| BD1M13EKP | Ecology and materials | Z,ZK | 5 | 14KP+6KC | Z | PZ |
| BD1M15ETT | Electrical Heat | Z,ZK | 5 | 14KP+6KS | Z | PZ |

Number of semester: 2

| 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 |
|----------------|---|-------------------|---------|----------|----------|------|
| BD1M16EKE1 | Economy of Power Industry Ji í Vaší ek, Old ich Starý, Tomáš Králík Tomáš Králík Old ich Starý (Gar.) | Z,ZK | 5 | 14KP+6KC | L | Р |
| BD1M15ENY | Power Plants | Z,ZK | 5 | 14KP+6KS | L | PZ |
| BD1M15TVN | High Voltage Engineering | Z,ZK | 5 | 14KP+6KL | L | PZ |
| BD1M14TVM | Theory and Application of Power Converters | Z,ZK | 5 | 14KP+6KL | . L | PZ |
| | | Min. cours. | | | | |
| 2018_MEEMPV1-K | Povinn volitelné p edm ty specializace | 2 | Min/Max | | | 5)./ |
| | BD1M16EUE1,BD1M15ELS, (see the list of groups below) | Max. cours. 10/20 | | PV | | |
| | | 4 | | | | |

Number of semester: 3

| 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 |
|----------|---|------------|---------|-------|----------|------|
| BD1MPROJ | Individual project Josef ernohous, Ji í Vaší ek, Miroslav Vítek, Zden k Müller, Stanislav Bou ek Old ich Starý Old ich Starý (Gar.) | Z | 5 | 0p+4s | Z | Р |

| BD1M13ASS | Solar Systems Applications Vít zslav Benda, Ladislava erná, Jakub Holovský, Pavel Hrzina Vít zslav Benda Vít zslav Benda (Gar.) | Z,ZK | 5 | 14KP+6KL | Z | Р |
|---------------|---|-------------|---------|----------|---|----|
| BD1M15DEE | Distribution of Electrical Energy | Z,ZK | 5 | 14KP+6KS | Z | PZ |
| BD1M14ESP | Electric Machinery and Apparatus Pavel Mindl, Vít Hlinovský Pavel Mindl | Z,ZK | 5 | 14KP+6KL | Z | PZ |
| BD1M15PRE1 | Transmission and Distribution of Electricity | Z,ZK | 5 | 14KP+6KS | Z | PZ |
| | | Min. cours. | | | | |
| 2040 MEEMILIK | Humanitní p edm ty | 1 | Min/Max | | | P |
| 2018_MEEMH-K | BD0M16FIL,BD0M16HVT, (see the list of groups below) | Max. cours. | 5/5 | | | |
| | | 1 | | | | |

Number of semester: 4

| 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 |
|----------------|---|-------------|---------|-------|----------|------|
| BDIP25 | Diploma Thesis | Z | 25 | 22s | L | Р |
| 2018 MEEMVOL-K | V-P(-Inf - III - m f m - Im f m | Min. cours. | Min/Max | | | |
| 2016_WEEWVOL-K | Volitelné odborné p edm ty | 0 | 0/999 | | | V |

List of groups of courses of this pass with the complete content of members of individual groups

| Kód | | Name of the group of group (for specification | courses and on see here o | codes of members of this r below the list of courses | Com | pletion | Credi | ts Scope | Semester | Role |
|------------|------------|---|---------------------------|---|------|------------------------------|---------------|---------------|----------------|------|
| 2018_MEI | ЕМН-К | | umanitní p e | | Min. | cours. 1 . cours. 1 | Min/M | ах | | P |
| BD0M16FIL | Philosophy | 2 | BD0M16HVT | History of science and technolog . | | BD0M16 | PSM | Psychology | | |
| BD0M16TEO | Theology | | | • | | | | | | |
| 2018_MEE | MPV1-K | Povinn vol | litelné p edm | ty specializace | | cours. 2 cours. 4 | Min/M | | | PV |
| BD1M16EUE1 | Economy of | f Energy Use | BD1M15ELS | Electrical Light | | BD1M14 | MDS1 | Modeling of D | ynamical Syste | ms |
| BD1M13VSE | Power com | ponents in electrical e | | • | | • | | | | |
| 2018_MEE | MVOL-K | Volite | elné odborné | p edm ty | Min. | cours. 0 | Min/M 0/99 | | | V |

List of courses of this pass:

| Code | Name of the course | Completion | Credits |
|-----------------------|---|-----------------------|--------------|
| BD0M16FIL | Philosophy 2 | Z,ZK | 5 |
| BD0M16HVT | History of science and technology 2 | Z,ZK | 5 |
| This subject traces | historical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate stude | ents' interest in the | history and |
| traditions of the sul | oject, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life | and the influence | of technical |
| | engineers | | |
| BD0M16PSM | Psychology | Z,ZK | 5 |
| BD0M16TEO | Theology | Z,ZK | 5 |
| This subject provide | les to students the basic orientation in christian theology and requires no special previous education. After short philosophic lecture i | he basic theologic | disciplines |
| are gone through. T | he subject is determined not only to believer students who want to know the reliable theologic grounding but also above all to ones wh | o want to get know | Christianity |
| | - religion from which graws our civilization up. | | |

| DD (114) 0100 | | 7.71 | |
|---|--|--|-------------------------------|
| BD1M13ASS | Solar Systems Applications | Z,ZK | 5 |
| The aim of the course is to d | eepen the knowledge of the properties of semiconductor materials and structures that are important for a deeper unc components technology . | derstanding of the sem | iiconductor |
| BD1M13EKP | Ecology and materials | Z,ZK | 5 |
| Electrical Technology from the | ne perspective of ecology. Environmental assessment of the various types of surface protection. Environmental aspec | cts of protective system | ns used in |
| ectronics. Environmental imp | acts of electrical production. Ekodesign proposal of the electrical product. Principles of the proposal product for a diffic of electrical waste. | ult operating environme | ent. Disposa |
| BD1M13JAS1 | Quality and Reliability | Z,ZK | 6 |
| , | om the area of quality and reliability and their control, philosophy of quality, systems of quality control in the world. R | | 1 |
| | liability, basic distributions used in reliability and their basic characteristics. Back-up using a warm and cold standby, | | - |
| eliability of components and s | systems, calculation of reliability using composition and decomposition. and using a method of a list. Basic statistical m | ethods and tools joined | d with qualit |
| control, managerial too | ols for quality control. Techniques FMEA and QFFD, house of quality. Capability of a process. Taguchi loss function. A | udits. Statistical inspec | tion. |
| BD1M13VSE | Power components in electrical engineering | Z,ZK | 5 |
| I I | e (diodes, BJTs, thyristors, MOSFETs and IGBTs) and integraed structures (modules). Structures, function, characte | ' | , Passive |
| | components of powet electronic. Connection of devices in parallel and in series. | • | |
| BD1M14ESP | Electric Machinery and Apparatus | Z,ZK | 5 |
| | act and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, sy | | 1 |
| | cuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. I | | |
| • | e drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous ma | | |
| • • | d speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a | | |
| | capacity. | | ,, |
| D1M14MDS1 | Modeling of Dynamical Systems | Z,ZK | 5 |
| | ng knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in t | | _ |
| ic course deals with combinin | of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. | ne compliation of north | ncai mode |
| BD1M14SSE | Machinery and Structures of Power Plants | Z,ZK | 5 |
| | uaint students with forms of energy transformation in power plants, describing the function of power facilities, their struc | ' | 1 |
| | | | 1 |
| BD1M14TVM | Theory and Application of Power Converters | Z,ZK | 5 |
| | al applications of power semiconductor converters on their sizing, switching and protection of power semiconductor c | | |
| | on and control strategies of power semiconductor converters and modern trends in their application in electric drives | | 1 |
| BD1M15DEE | Distribution of Electrical Energy | Z,ZK | 5 |
| BD1M15ELS | Electrical Light | Z,ZK | 5 |
| BD1M15ENY | Power Plants | Z,ZK | 5 |
| BD1M15ETT | Electrical Heat | Z,ZK | 5 |
| BD1M15IAP | Engineering Applications | Z,ZK | 5 |
| BD1M15PPE1 | Elements and Operation of Electrical Power Systems | Z,ZK | 5 |
| BD1M15PRE1 | Transmission and Distribution of Electricity | Z,ZK | 5 |
| BD1M15TVN | · | Z,ZK | 5 |
| | High Voltage Engineering | | |
| BD1M16EKE1 | Economy of Power Industry | Z,ZK | 5 |
| • | f power companies. Cost structure of power generation and distribution. Prices and tariff systems for power, heat and | • ' | |
| Examples of economic eval | uation and investment appraisal of the typical project in power sector. Renewable energy sources, externalities. Ener | gy policy and energy is | aw in CR. |
| DANAGELIEA | Liberalization and power market development. | 7.71/ | |
| BD1M16EUE1 | Economy of Energy Use | Z,ZK | 5 |
| | nagement of company, buildings or energy systems. Energy need and consumption, energy balance. Energy charact | | |
| | nergy audit and feasibility study, optimization of energy management of energy systems. Prices and tariffs, economy | | 1 |
| BD1MPROJ | | 1 7 | 5 |
| | Individual project | Z | |
| | Individual project n of a project. A student will choose a topic from a list of topics specified by branch department. The project will be described by branch department. The project will be described by branch department. | 1 | ework of a |
| Independent work in the form | n of a project. A student will choose a topic from a list of topics specified by branch department. The project will be de subject. | 1 | ework of a |
| Independent work in the form | n of a project. A student will choose a topic from a list of topics specified by branch department. The project will be de | fended within the fram | 25 |
| Independent work in the form BDIP25 Independent final comprehens | n of a project. A student will choose a topic from a list of topics specified by branch department. The project will be de subject. Diploma Thesis | fended within the fram | 25 y, which wil |
| BDIP25 | n of a project. A student will choose a topic from a list of topics specified by branch department. The project will be de subject. Diploma Thesis sive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his epartment or branch departments. The diploma thesis will be defended in front of the board of examiners for the com | fended within the fram Z s or her branch of stud prehensive final exami | 25 y, which wil nation. |
| BDIP25 ndependent final comprehens be specified by branch do BEZM | n of a project. A student will choose a topic from a list of topics specified by branch department. The project will be de subject. Diploma Thesis sive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his | fended within the fram Z s or her branch of stud prehensive final exami | 25 y, which wil nation. |

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