

Study plan

Name of study plan: Open Electronic Systems - Solid State Systems

Faculty/Institute/Others: Faculty of Electrical Engineering
 Department: Department of Radioelectronics
 Branch of study guaranteed by the department: Solid State Systems
 Garantor of the study branch: prof. Ing. Pavel Hazdra, CSc.
 Program of study: Open Electronic Systems
 Type of study: Follow-up master full-time
 Required credits: 74
 Elective courses credits: 46
 Sum of credits in the plan: 120
 Note on the plan:

Name of the block: Compulsory courses in the program
 Minimal number of credits of the block: 25
 The role of the block: P

Code of the group: MDIPE
 Name of the group: Diploma Thesis
 Requirement credits in the group: In this group you have to gain at least 25 credits (at most 375)
 Requirement courses in the group: In this group you have to complete at least 1 course
 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 |
|-----------|--|------------|---------|----------|----------|------|
| AE0M32DIP | Diploma project | Z | 25 | 0P + 36S | L | P |
| AE0M14DIP | Diploma Project | Z | 25 | | L | P |
| AE0M33DIP | Diploma Thesis | Z | 25 | 36S | L | P |
| AE0M38DIP | Diploma Thesis | Z | 25 | 0P+36C | L | P |
| AE0M37DIP | Diploma Thesis | Z | 25 | 36s | L | P |
| AE0M16DIP | Diploma thesis | Z | 25 | 36s | L,Z | P |
| AE0M35DIP | Diploma Thesis | Z | 25 | 36S | L | P |
| AE0M17DIP | Diploma Thesis | Z | 25 | 36s | L | P |
| AE0M13DIP | Diploma Thesis | Z | 25 | 36S | L | P |
| AE0M34DIP | Diploma Thesis | Z | 25 | 36C | L | P |
| ADIP25 | Diploma Thesis | Z | 25 | 36s | L | P |
| AE4M99DIP | Master Thesis | Z | 25 | | L | P |
| AE0M15DIP | Master's thesis | Z | 25 | 36s | L | P |

Characteristics of the courses of this group of Study Plan: Code=MDIPE Name=Diploma Thesis

| | | | |
|---|-----------------|---|----|
| AE0M32DIP | Diploma project | Z | 25 |
| Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination. | | | |
| AE0M14DIP | Diploma Project | Z | 25 |
| AE0M33DIP | Diploma Thesis | Z | 25 |
| AE0M38DIP | Diploma Thesis | Z | 25 |
| AE0M37DIP | Diploma Thesis | Z | 25 |
| Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination. | | | |
| AE0M16DIP | Diploma thesis | Z | 25 |
| AE0M35DIP | Diploma Thesis | Z | 25 |

| | | | |
|--|-----------------|---|----|
| AE0M17DIP | Diploma Thesis | Z | 25 |
| Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination. Diploma projects deals with microwave technique, antennas, propagation, optical communications, EMC, and medical applications. | | | |
| AE0M13DIP | Diploma Thesis | Z | 25 |
| Independent final comprehensive work for the Master's degree study program. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination. | | | |
| AE0M34DIP | Diploma Thesis | Z | 25 |
| Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination. | | | |
| ADIP25 | Diploma Thesis | Z | 25 |
| Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination. | | | |
| AE4M99DIP | Master Thesis | Z | 25 |
| AE0M15DIP | Master's thesis | Z | 25 |

Code of the group: MOESEBME

Name of the group: Safety of the master's studies

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

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 |
|-------|---|------------|---------|---------|----------|------|
| BEEZM | Safety in Electrical Engineering for a master's degree Vladimír K la, Ivana Nová, Josef ernohous Ivana Nová Vladimír K la (Gar.) | Z | 0 | 2BP+2BC | Z | P |

Characteristics of the courses of this group of Study Plan: Code=MOESEBME Name=Safety of the master's studies

| | | | |
|--|--|---|---|
| BEEZM | Safety in Electrical Engineering for a master's degree | Z | 0 |
| The course provides for students of all programs periodic training guidelines for health and occupational safety and gives knowledge of electrical hazard of given branch of study. Students receive indispensable qualification according to the current Directive of the Dean. | | | |

Name of the block: Compulsory courses of the specialization

Minimal number of credits of the block: 45

The role of the block: PO

Code of the group: MOESEPO3

Name of the group: Compulsory subjects of the branch

Requirement credits in the group: In this group you have to gain 45 credits

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

Credits in the group: 45

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 |
|-----------|---|------------|---------|-------|----------|------|
| AE8M31AAS | Advanced Analog Systems | Z,ZK | 5 | 2P+2S | Z | PO |
| AE8M36ACA | Advanced Computer Architectures | Z,ZK | 5 | 2P+2S | Z | PO |
| AE8M38ASP | Analog.Sig.Proc.&Digitalization | Z,ZK | 5 | 2P+2L | Z | PO |
| AE8M34ICD | IC Design | Z,ZK | 5 | 2P+2C | L | PO |
| AE8M34ICS | IC Structures | Z,ZK | 5 | 2P+2C | Z | PO |
| AE8M34MST | Microsystems | Z,ZK | 5 | 2P+2L | L | PO |
| AE8M38MS | Modern Sensors | Z,ZK | 5 | 2P+2L | Z | PO |
| AE8M34NAN | Nanoelectronics and Nanotechnology | Z,ZK | 5 | 2P+2C | L | PO |
| AE8M34OEP | Optoelectronics and Photonics | Z,ZK | 5 | 2P+2L | Z | PO |

Characteristics of the courses of this group of Study Plan: Code=MOESEPO3 Name=Compulsory subjects of the branch

| | | | |
|-----------|---------------------------------|------|---|
| AE8M31AAS | Advanced Analog Systems | Z,ZK | 5 |
| AE8M36ACA | Advanced Computer Architectures | Z,ZK | 5 |
| AE8M38ASP | Analog.Sig.Proc.&Digitalization | Z,ZK | 5 |
| AE8M34ICD | IC Design | Z,ZK | 5 |

| | | | |
|-----------|------------------------------------|------|---|
| AE8M34ICS | IC Structures | Z,ZK | 5 |
| AE8M34MST | Microsystems | Z,ZK | 5 |
| AE8M38MS | Modern Sensors | Z,ZK | 5 |
| AE8M34NAN | Nanoelectronics and Nanotechnology | Z,ZK | 5 |
| AE8M34OEP | Optoelect. and Photonics | Z,ZK | 5 |

Name of the block: Elective courses

Minimal number of credits of the block: 4

The role of the block: V

Code of the group: MOESEVOL

Name of the group: Elective subjects

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group: ~Student can choose arbitrary subject of the master's program (EEM - Electrical Engineering, Power Engineering and Management, KME - Communications, Multimedia and Electronics, KYR - Cybernetics and Robotics, OI - Open Informatics, OES - Open Electronics Systems) which is not part of his curriculum. Student can choose with consideration of recommendation of the branch guarantee. You can find a selection of optional courses organized by the departments on the web site <http://www.fel.cvut.cz/cz/education/volitelne-predmety.html>

Code of the group: MOESEH

Name of the group: Humanities subjects

Requirement credits in the group: In this group you have to gain at least 4 credits (at most 22)

Requirement courses in the group: In this group you have to complete at least 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 |
|-----------|---|------------|---------|-------|----------|------|
| AE0M16HT2 | History of science and technology 2 | Z,ZK | 4 | 2+2s | L | v |
| AE0M16FI2 | Philosophy II | Z,ZK | 4 | 2+2s | L | v |
| AE0M16MPS | Psychology | Z,ZK | 4 | 2+2s | Z | v |
| AE0M16TE1 | Theology | Z,ZK | 4 | 2+2s | L | v |
| A003TV | Physical Education | Z | 2 | 0+2 | L,Z | v |

Characteristics of the courses of this group of Study Plan: Code=MOESEH Name=Humanities subjects

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|-----------|-------------------------------------|------|---|---|
| AE0M16HT2 | History of science and technology 2 | Z,ZK | 4 | This subject traces historical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate students' interest in the history and traditions of the subject, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life and the influence of technical engineers |
| AE0M16FI2 | Philosophy II | Z,ZK | 4 | The course is oriented on the transdisciplinary aspects of philosophy, informatics, physics, mathematics and biology. |
| AE0M16MPS | Psychology | Z,ZK | 4 | |
| AE0M16TE1 | Theology | Z,ZK | 4 | This subject provides to students the basic orientation in christian theology and requires no special previous education. After short philosophic lecture the basic theologic disciplines are gone through. The subject is determined not only to believer students who want to know the reliable theologic grounding but also above all to ones who want to get know Christianity - religion from which grows our civilization up. |
| A003TV | Physical Education | Z | 2 | |

Code of the group: MEJK

Name of the group: Language courses

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

Code of the group: METV

Name of the group: Physical Training

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

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 |
|------------|--|------------|---------|-------|----------|------|
| 03TV | Physical Education | Z | 1 | 2s | Z,L | v |
| A0M03TVI | Physical Education I | Z | 1 | 2s | Z | v |
| A0M03TVII | Physical Education II | Z | 1 | 2s | L | v |
| A0M03TVIII | Physical Education III | Z | 1 | 2s | Z | v |
| A0M03TVIV | Physical Education IV | Z | 1 | 2s | L | v |
| A0M03TVK | Physical Education Course | Z | 1 | 7dní | Z,L | v |

Characteristics of the courses of this group of Study Plan: Code=METV Name=Physical Training

| | | | | | | |
|------------|---------------------------|---|---|--|--|--|
| 03TV | Physical Education | Z | 1 | The student can be enlisted in the subject P.E. 03TV (7 times at maximum), the student gets one (1) credit (max. 7 credits during the whole study at F.E.E.) after finishing the optional P.E. subject. The syllabi of each sport disciplin can be found on the Internet address: http://www.Feld.cvut.cz/fee/K303 | | |
| A0M03TVI | Physical Education I | Z | 1 | The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity. | | |
| A0M03TVII | Physical Education II | Z | 1 | The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity. | | |
| A0M03TVIII | Physical Education III | Z | 1 | The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity. | | |
| A0M03TVIV | Physical Education IV | Z | 1 | The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity. | | |
| A0M03TVK | Physical Education Course | Z | 1 | | | |

List of courses of this pass:

| Code | Name of the course | Completion | Credits |
|---|----------------------|------------|---------|
| 03TV | Physical Education | Z | 1 |
| The student can be enlisted in the subject P.E. 03TV (7 times at maximum), the student gets one (1) credit (max. 7 credits during the whole study at F.E.E.) after finishing the optional P.E. subject. The syllabi of each sport disciplin can be found on the Internet address: http://www.Feld.cvut.cz/fee/K303 | | | |
| A003TV | Physical Education | Z | 2 |
| A0M03TVI | Physical Education I | Z | 1 |
| The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, | | | |

swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity.

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|---|-------------------------------------|------|----|
| A0M03TVII | Physical Education II | Z | 1 |
| <p>The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity.</p> | | | |
| A0M03TVIII | Physical Education III | Z | 1 |
| <p>The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity.</p> | | | |
| A0M03TVIV | Physical Education IV | Z | 1 |
| <p>The main goal of the physical training is to improve and extend locomotive skills which students have been earned within previous stages of their education as well as gain basic knowledge connected with kinantropology, hygienics and physiotherapy. Special attention is paid on the healthy lifestyle forming and compensation of sedentary occupation of students as a part of combat with civilization diseases. Within different study programmes, the Department of Physical Education and Sport offers following disciplines: aerobics, aikido, basketball, beach volleyball, badminton, bowling, skating, budo, floorball, football, frisbee, golf, in-line skating, canoeing, karate, fitness, downhill skiing, ice hockey, climbing, shooting bow, ninjutsu, swimming, softball, spinning, squash, table tennis, tennis, hiking, volleyball and health physical education. Students may choose one of above described sport disciplines according to their own interest and available capacity.</p> | | | |
| A0M03TVK | Physical Education Course | Z | 1 |
| ADIP25 | Diploma Thesis | Z | 25 |
| <p>Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.</p> | | | |
| AE0M13DIP | Diploma Thesis | Z | 25 |
| <p>Independent final comprehensive work for the Master's degree study program. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.</p> | | | |
| AE0M14DIP | Diploma Project | Z | 25 |
| AE0M15DIP | Master's thesis | Z | 25 |
| AE0M16DIP | Diploma thesis | Z | 25 |
| AE0M16FI2 | Philosophy II | Z,ZK | 4 |
| <p>The course is oriented on the transdisciplinary aspects of philosophy, informatics, physics, mathematics and biology.</p> | | | |
| AE0M16HT2 | History of science and technology 2 | Z,ZK | 4 |
| <p>This subject traces historical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate students' interest in the history and traditions of the subject, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life and the influence of technical engineers</p> | | | |
| AE0M16MPS | Psychology | Z,ZK | 4 |
| AE0M16TE1 | Theology | Z,ZK | 4 |
| <p>This subject provides to students the basic orientation in christian theology and requires no special previous education. After short philosophic lecture the basic theologic disciplines are gone through. The subject is determined not only to believer students who want to know the reliable theologic grounding but also above all to ones who want to get know Christianity - religion from which grows our civilization up.</p> | | | |
| AE0M17DIP | Diploma Thesis | Z | 25 |
| <p>Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination. Diploma projects deals with microwave technique, antennas, propagation, optical communications, EMC, and medical applications.</p> | | | |
| AE0M32DIP | Diploma project | Z | 25 |
| <p>Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.</p> | | | |
| AE0M33DIP | Diploma Thesis | Z | 25 |
| AE0M34DIP | Diploma Thesis | Z | 25 |
| <p>Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.</p> | | | |
| AE0M35DIP | Diploma Thesis | Z | 25 |
| AE0M37DIP | Diploma Thesis | Z | 25 |
| <p>Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which will be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.</p> | | | |
| AE0M38DIP | Diploma Thesis | Z | 25 |
| AE4M99DIP | Master Thesis | Z | 25 |
| AE8M31AAS | Advanced Analog Systems | Z,ZK | 5 |
| AE8M34ICD | IC Design | Z,ZK | 5 |
| AE8M34ICS | IC Structures | Z,ZK | 5 |
| AE8M34MST | Microsystems | Z,ZK | 5 |
| AE8M34NAN | Nanoelectronics and Nanotechnology | Z,ZK | 5 |
| AE8M34OEP | Optoelectronics and Photonics | Z,ZK | 5 |
| AE8M36ACA | Advanced Computer Architectures | Z,ZK | 5 |
| AE8M38ASP | Analog.Sig.Proc.&Digitalization | Z,ZK | 5 |

| | | | |
|---|--|------|---|
| AE8M38MS | Modern Sensors | Z,ZK | 5 |
| BEEZM | Safety in Electrical Engineering for a master's degree | Z | 0 |
| The course provides for students of all programs periodic training guidelines for health and occupational safety and gives knowledge of electrical hazard of given branch of study. Students receive indispensable qualification according to the current Directive of the Dean. | | | |

For updated information see <http://bilakniha.cvut.cz/en/f3.html>

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