

Study plan

Name of study plan: Open Electronic Systems - Communications and Signal Processing

Faculty/Institute/Others: Faculty of Electrical Engineering

Department: Department of Radioelectronics

Branch of study guaranteed by the department: Communications and Signal Processing

Garantor of the study branch: prof. Ing. Jan Sýkora, 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	36s	L	P
AE0M14DIP	Diploma Project	Z	25		L	P
AE0M16DIP	Diploma thesis	Z	25	36s	L,Z	P
AE0M13DIP	Diploma Thesis	Z	25	36s	L	P
AE0M02DIP	Diploma Thesis	Z	25	36s	L	P
AE0M17DIP	Diploma Thesis	Z	25	36s	L	P
AE0M38DIP	Diploma Thesis	Z	25	0P+36C	L	P
AE0M35DIP	Diploma Thesis	Z	25	36s	L	P
AE0M34DIP	Diploma Thesis	Z	25	36C	L	P
AE0M37DIP	Diploma Thesis	Z	25	36s	L	P
AE0M33DIP	Diploma Thesis	Z	25	36s	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			
AE0M16DIP	Diploma thesis	Z	25			
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.		
AE0M02DIP	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.		

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.			
AE0M38DIP	Diploma Thesis	Z	25
AE0M35DIP	Diploma Thesis	Z	25
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.			
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.			
AE0M33DIP	Diploma Thesis	Z	25
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 Kůla, Ivana Nová, Josef Černošous Vladimír Kůla Vladimír Kůla (Gar.)	Z	0	2j+2j	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: MOESEPO1

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 10 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
AE8M32AQT	Applied Queueing Theory	Z,ZK	6	3+1c	Z	PO
AE8M31APS	Audio Processing and source coding	Z,ZK	5	4+0	L	PO
AE8M32AVL	Audio-Video Processing Lab	Z	2	0+2L	Z	PO
AE8M37CDC	Coding in Digital Communications	Z,ZK	5	4+0	L	PO
AE8M37CSL	Communications and Signal Processing Laboratory	Z	2	0+2c	L	PO
AE8M32NOP	Network Optimization	Z,ZK	5	4+0c	Z	PO
AE8M37RSY	Radio Systems	Z,ZK	5	4+0	Z	PO
AE8M32VPS	Video processing and source coding	Z,ZK	5	4+0	Z	PO
AE8M37WDC	Wireless Digital Communications	Z,ZK	5	4+0	Z	PO

Characteristics of the courses of this group of Study Plan: Code=MOESEPO1 Name=Compulsory subjects of the branch

AE8M32AQT	Applied Queueing Theory	Z,ZK	6
The aim of the course is to present an overlook of dimensioning of service systems in telecommunications networks on the basis of results of the queueing theory (QT). Introduce possibilities of simulation and modelling service systems and its networks both from the point of view of grade of service GoS and quality of service QoS. Results of the QT are applied on different service systems and telecommunication networks deploying and operating at time being. It is shown that models derived for telecommunications systems can be utilized for dimensioning of service systems in real life.			
AE8M31APS	Audio Processing and source coding	Z,ZK	5
AE8M32AVL	Audio-Video Processing Lab	Z	2
AE8M37CDC	Coding in Digital Communications	Z,ZK	5
AE8M37CSL	Communications and Signal Processing Laboratory	Z	2
AE8M32NOP	Network Optimization	Z,ZK	5
AE8M37RSY	Radio Systems	Z,ZK	5
AE8M32VPS	Video processing and source coding	Z,ZK	5
AE8M37WDC	Wireless Digital Communications	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/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
A003TV	Physical Education	Z	2	0+2	L,Z	v
AE0M16TE1	Theology	Z,ZK	4	2+2s	L	v

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

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
A003TV	Physical Education	Z	2
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.			

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.			
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
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.			
AE0M02DIP	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.			
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.			
AE0M14DIP	Diploma Project	Z	25
AE0M15DIP	Master's thesis	Z	25
AE0M16DIP	Diploma thesis	Z	25
AE0M16FI2	Philosophy II	Z,ZK	4
The course is oriented on the transdisciplinary aspects of philosophy, informatics, physics, mathematics and biology.			
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			
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.			
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.			
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.			

AE0M33DIP	Diploma Thesis	Z	25
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.			
AE0M35DIP	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.			
AE0M38DIP	Diploma Thesis	Z	25
AE4M99DIP	Master Thesis	Z	25
AE8M31APS	Audio Processing and source coding	Z,ZK	5
AE8M32AQT	Applied Queueing Theory	Z,ZK	6
The aim of the course is to present an overlook of dimensioning of service systems in telecommunications networks on the basis of results of the queuing theory (QT). Introduce possibilities of simulation and modelling service systems and its networks both from the point of view of grade of service GoS and quality of service QoS. Results of the QT are applied on different service systems and telecommunication networks deploying and operating at time being. It is shown that models derived for telecommunications systems can be utilized for dimensioning of service systems in real life.			
AE8M32AVL	Audio-Video Processing Lab	Z	2
AE8M32NOP	Network Optimization	Z,ZK	5
AE8M32VPS	Video processing and source coding	Z,ZK	5
AE8M37CDC	Coding in Digital Communications	Z,ZK	5
AE8M37CSL	Communications and Signal Processing Laboratory	Z	2
AE8M37RSY	Radio Systems	Z,ZK	5
AE8M37WDC	Wireless Digital Communications	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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