

## Study plan

### Name of study plan: Teaching of electrical engineering and cybernetics subjects for secondary schools

Faculty/Institute/Others: Faculty of Electrical Engineering

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Teaching electrical engineering and cybernetics subjects for secondary schools

Type of study: Follow-up master combined

Required credits: 120

Elective courses credits: 0

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: 84

The role of the block: P

Code of the group: 2025\_MUCIDIP-K

Name of the group: Diploma Thesis

Requirement credits in the group: In this group you have to gain 9 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 9

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
BDUM-DIP	Diploma Thesis	Z	9			P

Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIDIP-K Name=Diploma Thesis

BDUM-DIP	Diploma Thesis				Z	9
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Code of the group: 2025\_MUCIPO-K

Name of the group: Compulsory subjects of the program

Requirement credits in the group: In this group you have to gain 24 credits

Requirement courses in the group: In this group you have to complete 4 courses

Credits in the group: 24

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
BDUM-DES	Didaktika elektronické správy výuky	Z,ZK	6	32KP		P
BDUM-DEZ	Didaktika elektronických učebních zdrojů	Z,ZK	6	32KP		P
BDUM-DVE	Didaktika výuky v elektrotechnických oborech	Z,ZK	6	32KP		P
BDUM-DVK	Didaktika výuky v kybernetických oborech	Z,ZK	6	32KP		P

Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIPO-K Name=Compulsory subjects of the program

BDUM-DES	Didaktika elektronické správy výuky			Z,ZK	6
BDUM-DEZ	Didaktika elektronických učebních zdrojů			Z,ZK	6
BDUM-DVE	Didaktika výuky v elektrotechnických oborech			Z,ZK	6
BDUM-DVK	Didaktika výuky v kybernetických oborech			Z,ZK	6

Code of the group: 2025\_MUCIPP-K

Name of the group: Compulsory subjects of the program

Requirement credits in the group: In this group you have to gain 24 credits

Requirement courses in the group: In this group you have to complete 3 courses

Credits in the group: 24

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
BDUM-PPP	Propedeutikum pedagogické praxe	KZ	6	32KP		P
BDUM-RPP	Reflexe pedagogické praxe	Z	3	16KP		P
BDUM-SPP	Souvislá pedagogická praxe	KZ	15	450XH		P

Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIPP-K Name=Compulsory subjects of the program

BDUM-PPP	Propedeutikum pedagogické praxe	KZ	6
BDUM-RPP	Reflexe pedagogické praxe	Z	3
BDUM-SPP	Souvislá pedagogická praxe	KZ	15

Code of the group: 2025\_MUCIP-K

Name of the group: Compulsory subjects of the program

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) <i>Tutors, authors and guarantors (gar.)</i>	Completion	Credits	Scope	Semester	Role
32MC-K-MSVV-01	Social Science Research Methods	Z,ZK	3	8B		P
32MC-K-ODID-01	General Didactics	Z,ZK	5	16B		P
32MC-K-PEDO-01	General Pedagogy	Z,ZK	5	16B		P
32MC-K-PSEP-01	Psychology in Educational Process	Z,ZK	5	16B		P
32MC-K-U SP-01	Role of Teachers in Modern Society	ZK	3	8B		P
BDUM-SEM	Semester Project of Diploma Thesis	KZ	3			P
32MC-K-PEDS-01	Social Pedagogy	ZK	3	8B		P

Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIP-K Name=Compulsory subjects of the program

32MC-K-MSVV-01	Social Science Research Methods	Z,ZK	3
32MC-K-ODID-01	General Didactics	Z,ZK	5
32MC-K-PEDO-01	General Pedagogy	Z,ZK	5
32MC-K-PSEP-01	Psychology in Educational Process	Z,ZK	5
32MC-K-U SP-01	Role of Teachers in Modern Society	ZK	3
BDUM-SEM	Semester Project of Diploma Thesis	KZ	3
32MC-K-PEDS-01	Social Pedagogy	ZK	3

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 36

The role of the block: PV

Code of the group: 2025\_MUCIPVO-K

Name of the group: Compulsory elective subjects of the programme

Requirement credits in the group: In this group you have to gain at least 18 credits (at most 36)

Requirement courses in the group: In this group you have to complete at least 3 courses ( at most 6)

Credits in the group: 18

Note on the group:

~Student musí z této skupiny absolvovat předmět BUM-OTP Obvodové techniky přístrojů  
nebo BUM-EPR Elektronická praktika

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
BDUM-AZS	Signal analysis and processing	Z,ZK	6	32KP	L	PV
BDUM-EPR	Elektronická praktika	Z,ZK	6	32KP	Z	PV
BDUM-KUI	Cybernetics and Artificial Intelligence	Z,ZK	6	16P+16C	L	PV
BDUM-OTP	Obvodové techniky p ístroj	Z,ZK	6	32KP	Z	PV
BDUM-ROB	Robotics in Education <i>Martin Hlinovský, Vojt ch Petrucha, Pavel Krsek Martin Hlinovský Martin Hlinovský (Gar.)</i>	Z,ZK	6	2P+2L		PV
BDUM-SES	Senzory a zpracování signál	Z,ZK	6	32KP	L	PV

**Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIPVO-K Name=Compulsory elective subjects of the programme**

BDUM-AZS	Signal analysis and processing	Z,ZK	6
The course covers both analog input-output blocks for signal transmission and processing, as well as the possibilities of subsequent digital signal processing and measured data analysis. It discusses circuit solutions for amplifiers and filters, including their design, as well as methods for processing digitized data. Students will become familiar with both theoretical principles of signal processing and contemporary means of implementation, including analog structures and algorithms for subsequent digital processing.			
BDUM-EPR	Elektronická praktika	Z,ZK	6
BDUM-KUI	Cybernetics and Artificial Intelligence	Z,ZK	6
The course introduces the students into the field of artificial intelligence and gives the necessary basis for designing machine control algorithms. It advances the knowledge of state space search algorithms by including uncertainty in state transition. Students are introduced into reinforcement learning for solving problems when the state transitions are unknown, which also connects the artificial intelligence and cybernetics fields. Bayesian decision task introduces supervised learning. Learning from data is demonstrated on a linear classifier. Students practice the algoritms in computer labs.			
BDUM-OTP	Obvodové techniky p ístroj	Z,ZK	6
BDUM-ROB	Robotics in Education	Z,ZK	6
BDUM-SES	Senzory a zpracování signál	Z,ZK	6

Code of the group: 2025\_MUCIPV1-K

Name of the group: Compulsory elective subjects of the programme - Group 1

Requirement credits in the group: In this group you have to gain at least 6 credits (at most 10)

Requirement courses in the group: In this group you have to complete at least 1 course ( at most 2)

Credits in the group: 6

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
BDUM-MLB	Microcontroller Labs	Z,ZK	6	32KP	L	PV
32ME-K-PRSK-01	Presentation and Communication Skills	ZK	4	16B		PV

**Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIPV1-K Name=Compulsory elective subjects of the programme - Group 1**

BDUM-MLB	Microcontroller Labs	Z,ZK	6
The goal of this course is to make students acquainted with recent interesting applications, smart sensors circuits and peripherals handled by microcontrollers and to show them how to make an interesting lab experiment. In a lab students will program their own application and measure its properties. Because of usage of a programming language C it will be possible to focus on the practical part of the realization and show the pedagogical and didactic methods for experiments creation.			
32ME-K-PRSK-01	Presentation and Communication Skills	ZK	4

Code of the group: 2025\_MUCIPV2-K

Name of the group: Compulsory elective subjects of the programme - Group 2

Requirement credits in the group: In this group you have to gain at least 6 credits (at most 15)

Requirement courses in the group: In this group you have to complete at least 2 courses ( at most 5)

Credits in the group: 6

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
32MC-K-SVZP-01	Education of Pupils with Special Educational Needs	ZK	3	8B		PV
32MC-K-PSHY-01	Psycho-hygiene Aspects of Teaching Profession	Z,ZK	3	8B		PV
32MC-K-SPKO-01	Social and Pedagogical Communication	KZ	3	8B		PV

32MC-K-TECR-01	Impacts of Information Technology on Society	Z,ZK	3	8B		PV
32MC-K-RIZZ-01	Risk Behavior of Pupils	KZ	3	8B		PV

**Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIPV2-K Name=Compulsory elective subjects of the programme - Group 2**

32MC-K-SVZP-01	Education of Pupils with Special Educational Needs	ZK	3
32MC-K-PSHY-01	Psycho-hygiene Aspects of Teaching Profession	Z,ZK	3
32MC-K-SPKO-01	Social and Pedagogical Communication	KZ	3
32MC-K-TECR-01	Impacts of Information Technology on Society	Z,ZK	3
32MC-K-RIZZ-01	Risk Behavior of Pupils	KZ	3

Code of the group: 2025\_MUCIPV3-K

Name of the group: Compulsory elective subjects of the programme - Group 3

Requirement credits in the group: In this group you have to gain at least 6 credits (at most 24)

Requirement courses in the group: In this group you have to complete at least 1 course ( at most 4)

Credits in the group: 6

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
BDUM-EPR	Elektronická praktika	Z,ZK	6	32KP	Z	PV

**Characteristics of the courses of this group of Study Plan: Code=2025\_MUCIPV3-K Name=Compulsory elective subjects of the programme - Group 3**

BDUM-EPR	Elektronická praktika	Z,ZK	6
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### List of courses of this pass:

Code	Name of the course	Completion	Credits
32MCK-MSV-01	Social Science Research Methods	Z,ZK	3
32MCK-ODID-01	General Didactics	Z,ZK	5
32MCK-PEDO-01	General Pedagogy	Z,ZK	5
32MCK-PEDS-01	Social Pedagogy	ZK	3
32MCK-PSEP-01	Psychology in Educational Process	Z,ZK	5
32MCK-PSHY-01	Psycho-hygiene Aspects of Teaching Profession	Z,ZK	3
32MC-K-RIZZ-01	Risk Behavior of Pupils	KZ	3
32MCK-SPKO-01	Social and Pedagogical Communication	KZ	3
32MCK-SVZP-01	Education of Pupils with Special Educational Needs	ZK	3
32MCK-TECR-01	Impacts of Information Technology on Society	Z,ZK	3
32MCK-U SP-01	Role of Teachers in Modern Society	ZK	3
32ME-K-PRSK-01	Presentation and Communication Skills	ZK	4
BDUM-AZS	Signal analysis and processing	Z,ZK	6
The course covers both analog input-output blocks for signal transmission and processing, as well as the possibilities of subsequent digital signal processing and measured data analysis. It discusses circuit solutions for amplifiers and filters, including their design, as well as methods for processing digitized data. Students will become familiar with both theoretical principles of signal processing and contemporary means of implementation, including analog structures and algorithms for subsequent digital processing.			
BDUM-DES	Didaktika elektronické správy výuky	Z,ZK	6
BDUM-DEZ	Didaktika elektronických učebních zdrojů	Z,ZK	6
BDUM-DIP	Diploma Thesis	Z	9
BDUM-DVE	Didaktika výuky v elektrotechnických oborech	Z,ZK	6
BDUM-DVK	Didaktika výuky v kybernetických oborech	Z,ZK	6
BDUM-EPR	Elektronická praktika	Z,ZK	6
BDUM-KUI	Cybernetics and Artificial Intelligence	Z,ZK	6
The course introduces the students into the field of artificial intelligence and gives the necessary basis for designing machine control algorithms. It advances the knowledge of state space search algorithms by including uncertainty in state transition. Students are introduced into reinforcement learning for solving problems when the state transitions are unknown, which also connects the artificial intelligence and cybernetics fields. Bayesian decision task introduces supervised learning. Learning from data is demonstrated on a linear classifier. Students practice the algorithms in computer labs.			

BDUM-MLB	Microcontroller Labs	Z,ZK	6
The goal of this course is to make students acquainted with recent interesting applications, smart sensors circuits and peripherals handled by microcontrollers and to show them how to make an interesting lab experiment. In a lab students will program their own application and measure its properties. Because of usage of a programming language C it will be possible to focus on the practical part of the realization and show the pedagogical and didactic methods for experiments creation.			
BDUM-OTP	Obvodové techniky p ístroj	Z,ZK	6
BDUM-PPP	Propedeutikum pedagogické praxe	KZ	6
BDUM-ROB	Robotics in Education	Z,ZK	6
BDUM-RPP	Reflexe pedagogické praxe	Z	3
BDUM-SEM	Semester Project of Diploma Thesis	KZ	3
BDUM-SES	Senzory a zpracování signál	Z,ZK	6
BDUM-SPP	Souvislá pedagogická praxe	KZ	15

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

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