Recomended pass through the study plan

Name of the pass: Specialization Photonics - Passage through study

Faculty/Institute/Others: Faculty of Electrical Engineering

Department:

Pass through the study plan: Electronics and Communications - Photonics

Branch of study guranteed by the department: Welcome page

Guarantor of the study branch:

Program of study: Electronics and Communications

Type of study: Follow-up master full-time

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
BE2M31DSPA	Digital Signal Processing Petr Pollák Petr Pollák Petr Pollák (Gar.)	Z,ZK	6	2P+2C	Z	Р
BE2M17VOT	Fiber Optic Technology Mat j Komanec, Stanislav Zvánovec, Jan Šístek Stanislav Zvánovec Stanislav Zvánovec (Gar.)	Z,ZK	6	2P+2L	Z	Р
BE2M37OBFA	Image Photonics Petr Páta, Lukáš Krauz Petr Páta Petr Páta (Gar.)	Z,ZK	6	2P+2L	Z	Р
BE2M37OBT	Image Technology Petr Páta, Lukáš Krauz, Karel Fliegel Karel Fliegel Petr Páta (Gar.)	Z,ZK	6	2P+2L	Z	Р
BE2M37MAM	Microprocessors Stanislav Vítek Stanislav Vítek Stanislav Vítek (Gar.)	Z,ZK	6	2P+2L	Z	Р
BEEZM	Safety in Electrical Engineering for a master's degree Vladimír K la, Ivana Nová, Josef ernohous, Radek Havlí ek Radek Havlí ek Vladimír K la (Gar.)	Z	0	2BP+2BC	Z	Р

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
BE2M32OSS	Optical Systems and Networks	Z,ZK	6	2P + 2L	L	Р
BE2M17SBS	Wave Propagation for Wireless Links	Z,ZK	6	2P+2C	L	Р
BE2M32BTSA	Wireless Technologies	Z,ZK	6	2P + 2L	Z,L	Р
		Min. cours.				
2018_MEKEPV3	Compulsory subjects of the programme BE2M37MOTA,BE2M17CADA, (see the list of groups below)	5	Min/Max			PV
		Max. cours.	30/30			PV
		5				

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
BE2MPROJ6	Project Jan Šístek, Pavel Máša, Ivan Pravda, Lubor Jirásek, Zden k Be vá, František Rund František Rund František Rund (Gar.)	Z	6	0p+6s		Р
2018_MEKEPV3	Compulsory subjects of the programme BE2M37MOTA,BE2M17CADA, (see the list of groups below)	Min. cours. 5	Min/Max 30/30			PV

		Max. cours. 5				
2018_MEKEVOL	Elective subjects	Min. cours.	Min/Max 0/999		V	

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 MEKEVOL	Florities subjects	Min. cours.	Min/Max			
2010_WEKEVOL	Elective subjects	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 o group (for specificati	f courses and on see here o	codes of members of this r below the list of courses)	Com	pletion	Credits	Scope	Semester	Role
2018_MEI	KEPV3	Compulsor	ry subjects of	the programme		cours. 5 . cours. 5	Min/Ma			PV
BE2M37MOTA	Advanced	areas in image and vide	BE2M17CADA	CAD in HF Technique	ļ.	BE2M34	ZETA C	Sustom Electi	onics Design	
BE2M17MIOA	Microwave	Circuits BE2M34NANA Nanoelectronics and Nanotechnolo)	BE2M17	17OPM Optical Measurements		irements		
BE2M34PIOA	Planar Inte	egrated Optics	BE2M34NSV	VLSI System Design						
2018_ME	KEVOL		Elective subj	ects	Min.	cours. 0	Min/Ma 0/999	x		V

List of courses of this pass:

Code	Name of the course	Completion	Credits
BDIP25	Diploma Thesis	Z	25
Independent final c	omprehensive 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 compreh	ensive final examir	nation.
BE2M17CADA	CAD in HF Technique	Z,ZK	6
	Introduction into principles and techniques used in modern microwave circuit design.		
BE2M17MIOA	Microwave Circuits	Z,ZK	6
'	Subject is focused on the design of planar passive and active microwave circuits.		1
BE2M17OPM	Optical Measurements	Z,ZK	6
BE2M17SBS	Wave Propagation for Wireless Links	Z,ZK	6
includes both deeper	r theoretical foundations of radio wave propagation in the atmosphere as well as ITU-R design procedures for terrestrial and satellite, fix in various frequency bands.	ed and mobile com	munications
BE2M17VOT	Fiber Optic Technology	Z.ZK	6
	e is to introduce mechanisms of propagation of optical waves in optical fibers and fiber components. Furthermore, the optical measu	1 '	_
	racterization of optical fibers will be presented. Lectures include both the design and methodology of measuring transmission parame	•	•
	merical aperture, attenuation, dispersion, and measurement of basic characteristics of active and passive elements of optical commu	•	
oyotomo odom do ma	splices, couplers, refractive indices etc.		,
BE2M31DSPA	Digital Signal Processing	Z,ZK	6
The subject gives or	verview about basic methods of digital signal processing and their applications (examples from speech and biological signal proces	sing): disrete-time	signals and
systems, signal ch	aracteristics in time and frequency domain, Fourier transform, fast algorithms for DFT computation, introduction to digital filter design	gn, digital filtering in	n time and
	frequency domain, decimation and interpolation and their usage in filter banks, basics of LPC analysis. Further details can be four	nd at <a< td=""><td></td></a<>	
	href=http://noel.feld.cvut.cz/vyu/be2m31dspa>http://noel.feld.cvut.cz/vyu/be2m31dspa .		

BE2M32BTSA Wireless Technologies	Z,ZK	6
The lectures give overview of fundamental principles of wireless networks in various areas of their application. Students will understand architecture, pr	nciples and proto	cols used in
different wireless technologies and learn how these technologies can be exploited in real world applications. The goal is to teach students how to solve p	oblems related to	deployment
of wireless networks, their operation or development of wireless networks components.		
BE2M32OSS Optical Systems and Networks	Z,ZK	6
The course deals with the use of optical radiation for the transmission of information. The aim is to acquaint students with the functions of important com-	ponents used in a	an advanced
optical communication systems and networks. Students will learn how to design practical optical fiber link and the network. Students will receive the	•	e for the
implementation of a all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future, which will be based on a combination of wavelength multiplex with an all-optical photonic networks in the future of the	otical switching.	
BE2M34NANA Nanoelectronics and Nanotechnology	Z,ZK	6
The subject is oriented on the present nanotechnologies in the connection with their electronic, photonic and spintrinic applications. Quantum theory b		
effects observed in nanostructures. Basic nanoelectronic structures are described with their possible applications. Modern computer methods and mode		to simulate
the operation of nanoelectronic structures and which are the important tools for their design and optimalisation, are studied		
BE2M34NSV VLSI System Design	Z,ZK	6
Introduction to basic building blocks, architecture and design methodologies of advanced VLSI systems. Structure and design of digital and analogue in	•	
Integrated system description and synthesis using cell libraries and IP cores. Synchronization, power consumption and parasitics reduction issues. Testi systems. In seminars and labs, the hardware description language VHDL will be explained and used for practical design, synthesis and testing		•
BE2M34PIOA Planar Integrated Optics	Z.ZK	6
The subject describes theoretical and technological principles and design of planar integrated optics and optoelectronics as optical dividers, The study	ents get acquainte	ed with the
principles of the light propagation in planar waveguide and with basic devices and structures of integrated optics and optoelectronics as coupling elements	ents, optical micro	resonators,
planar optical transmitters an receivers with SS-LD, WG-PD. In the course are integrated devices and structures for telecommunication for multiplexing	and signal proces	ssing. There
are optical elements for physical and chemical sensor application and basic important measurement and diagnostic method	S.	
BE2M34ZETA Custom Electronics Design	KZ	6
The course deals with the design methodology of advanced custom electronics. The aim is to convert theoretical knowledge of previous studies into specific convertions.	ecific proposals for	or practical
applications. Student are getting familiar with the problems encountered in the professional electronic design and manufacturing. This course is based on re	eal experience in o	development
and production, showing the latest technological trends and component base.		
BE2M37MAM Microprocessors	Z,ZK	6
The aim is to make students acquainted with the properties of microprocessor systems, make students familiar with on-chip peripherals, connect extern	al circuit to the pro	cessor bus,
and with implementation of the memory or I/O space address extension. Next, taught the students to make simple program in the assembly language, C	language and co	mbination of
both. After completion of this subject student should be able to design and implement simpler microprocessor system including connection of necessary	ry peripherals and	d software
design.		
BE2M37MOTA Advanced areas in image and video technology	Z,ZK	6
This course focuses on the state-of-the-art techniques for digital image and video technology. These techniques and their applications cover almost all a	reas of technical	professions
dealing with human interaction. A significant part of the course is focused on the methods of image signal processing and main hardware and software	functional blocks	of related
imaging systems. The aim of the laboratory exercises is to familiarize with advanced methods for capturing, processing and reproduction of image inform	ation. Due to the f	ast progress
in this area, the content of the lectures and exercises is being continuously updated.		
BE2M37OBFA Image Photonics	Z,ZK	6
The subject offers a detailed overview of applied imaging photonic elements and systems. The subject deals with fundamentals of optics, Fourier optics	and optical compu	ıting. Fourier
optics. Image sensors - tube, CCD, CMOS. Image displays. Image converters and amplifiers. Photography and holography - sensitometry and densitometry	. Photonic (optical) computing.
Electron optics. Image processing in biosystems. Image processing for photonics.		
BE2M37OBT Image Technology	Z,ZK	6
This course deals with multimedia technology and it is focused mainly on acquisition, processing and reproduction of image information. It covers area of		
radiometry and colorimetry; design of objective lenses, image sensors and displays including their parameters. Further the course deals with cinemato	graphy, photograp	hy and with
radiometry and colorimetry; design of objective lenses, image sensors and displays including their parameters. Further the course deals with cinemator, other special methods of image reproduction, e.g. polygraphy and digital printing techniques. Studied problems are completed with explanation of advanced (preprocessing, compression, image reconstruction, etc.).	graphy, photograp	hy and with

BE2MPROJ6 Project Independent work in the form of a project. 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 project will be defended within the framework of a subject. List of possible topics: http://www.fel.cvut.cz/en/education/semestral-projects.html

Safety in Electrical Engineering for a master's degree Ζ

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 Generated: day 2025-10-18, time 22:54.