

Doporu ený pr chod studijním plánem

Název pr chodu: Specialization Radio Systems - Passage through study

Fakulta: Fakulta elektrotechnická

Katedra: katedra elektromagnetického pole

Pr chod studijním plánem: Electronics and Communications - Radio Systems

Obor studia, garantovaný katedrou:

Garant oboru studia:

Program studia: Electronics and Communications

Typ studia: Navazující magisterské prezen ní

Poznámka k pr chodu:

Kódování rolí p edm t a skupin p edm t :

P - povinné p edm ty programu, PO - povinné p edm ty oboru, Z - povinné p edm ty, S - povinn volitelné p edm ty, PV - povinn volitelné p edm ty, F - volitelné p edm ty odborné, V - volitelné p edm ty, T - t lovýchovné p edm ty

Kódování zp sob zakon ení predm t (KZ/Z/ZK) a zkratk semestr (Z/L):

KZ - klasifikovaný zápo et, Z - zápo et, ZK - zkouška, L - letní semestr, Z - zimní semestr

íslo semestru: 1

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejích len) Vyu ující, auto i a garanti (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BE2M37ART	Architecture of radio receivers and transmitters Josef Dobeš, Pavel Ková Karel Ulovec Pavel Ková (Gar.)	Z,ZK	6	2P+2L	Z	P
BE2M37DKM	Digital communications Pavel Puri er, Jan Sýkora Pavel Puri er Jan Sýkora (Gar.)	Z,ZK	6	3P+1C	Z	P
BE2M31DSPA	Digital Signal Processing Petr Pollák Petr Pollák (Gar.)	Z,ZK	6	2P+2C	Z	P
BE2M37MAM	Microprocessors Stanislav Vítek Stanislav Vítek Stanislav Vítek (Gar.)	Z,ZK	6	2P+2L	Z	P
BE2M17MIOA	Microwave Circuits P emysl Hudec, Karel Hoffmann P emysl Hudec Milan Polívka (Gar.)	Z,ZK	6	2P+2C	Z	P
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

íslo semestru: 2

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejích len) Vyu ující, auto i a garanti (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BE2M17ANT	Antennas Pavel Hazdra, Miloš Mazánek, Hynek Bártík, Jan Kra ek Jan Kra ek Miloš Mazánek (Gar.)	Z,ZK	6	2P+2L	L	P
BE2M17SBS	Wave Propagation for Wireless Links Miloš Mazánek, Jan Kra ek, Pavel Pecha Jan Kra ek Pavel Pecha (Gar.)	Z,ZK	6	2P+2C	L	P
BE2M32BTSA	Wireless Technologies	Z,ZK	6	2P + 2L	Z,L	P
2018_MEKEPV7	Compulsory subjects of the programme BE2M17CADA, BE2M37DTRA,..... (pokra ování viz seznam skupin níže)	Min. p edm. 5 Max. p edm. 5	Min/Max 30/30			PV

íslo semestru: 3

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejích len) Vyu ující, auto i a garanti (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BE2MPROJ6	Projekt - project Zden k Be vá, Jan Šístek, Pavel Máša, Ivan Pravda, Lubor Jirásek, František Rund František Rund František Rund (Gar.)	Z	6	0p+6s		P
2018_MEKEPV7	Compulsory subjects of the programme BE2M17CADA, BE2M37DTRA,..... (pokra ování viz seznam skupin níže)	Min. p edm. 5 Max. p edm. 5	Min/Max 30/30			PV

2018_MEKEVOL	Elective subjects	Min. p edm. 0	Min/Max 0/999			v
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íslo semestru: 4

Kód	Název p edm tu / Název skupiny p edm t (u skupiny p edm t seznam kód jejích len) Vyu ující, auto i a garanti (gar.)	Zakon ení	Kredity	Rozsah	Semestr	Role
BDIP25	Diplomová práce - Diploma Thesis	Z	25	22s	L	P
2018_MEKEVOL	Elective subjects	Min. p edm. 0	Min/Max 0/999			v

Seznam skupin p edm t tohoto pr chodu s úplným obsahem len jednotlivých skupin

Kód	Název skupiny p edm t a kódy len této skupiny p edm t (specifikace viz zde nebo níže seznam p edm t)	Zakon ení	Kredity	Rozsah	Semestr	Role
2018_MEKEPV7	Compulsory subjects of the programme	Min. p edm. 5 Max. p edm. 5	Min/Max 30/30			PV
BE2M17CADA	CAD in HF Technique	BE2M37DTRA	Digital Video and Audio Broadcas ...	BE2M17MIMA	Microwave Measurements	
BE2M32MKSA	Mobile Networks	BE2M37RNVA	Radio Navigation	BE2M34NSV	VLSI System Design	
2018_MEKEVOL	Elective subjects	Min. p edm. 0	Min/Max 0/999			v

Seznam p edm t tohoto pr chodu:

Kód	Název p edm tu	Zakon ení	Kredity
BDIP25	Diplomová práce - Diploma Thesis Samostatná záv re ná práce inženýrského studia komplexního charakteru. Téma práce si student vybere z nabídky témat souvisejících se studovaným oborem, která vypíše oborová katedra i katedry. Práce bude obhajována p ed komisí pro státní záv re né zkoušky.	Z	25
BE2M17ANT	Antennas Student will get strong knowledge about theory of electromagnetic field radiation and basic principles of antenna design. Methods of analysis are demonstrated on various types of antennas and their arrays. Seminars are both theoretical (analytical and numerical calculation using MATLAB and EM simulators CST) and practical (measurement of antenna parameters).	Z,ZK	6
BE2M17CADA	CAD in HF Technique Introduction into principles and techniques used in modern microwave circuit design.	Z,ZK	6
BE2M17MIMA	Microwave Measurements Fast development of wireless radio data communications (both mobile and stationary) also results in requirements for measurement of numerous related electrical parameters in frequency band ranging from hundreds of MHz to tens of GHz. The "Microwave measurements" subject brings description of all important measurement instruments and measurement methods used in this field. Instructions devoted to measurement devices also cover detailed inner structures, principles of operation, common measurement setups and optimum setting. Even relatively complex measurement instruments and setups are discussed, for example those used for measurement of noise and non-linear parameters. Exercises are focused on practical measurements commonly performed in the wireless communication field. Besides modern measurement instruments, students also learn a number of typical RF and microwave components, circuits, subsystems and digitally modulated signals.	Z,ZK	6
BE2M17MIOA	Microwave Circuits Subject is focused on the design of planar passive and active microwave circuits.	Z,ZK	6
BE2M17SBS	Wave Propagation for Wireless Links The aim of the course is to study the wireless transmission channel in real environments focusing on wave propagation for planning of terrestrial and satellite wireless links. The syllabus includes both deeper theoretical foundations of radio wave propagation in the atmosphere as well as ITU-R design procedures for terrestrial and satellite, fixed and mobile communications in various frequency bands.	Z,ZK	6
BE2M31DSPA	Digital Signal Processing The subject gives overview about basic methods of digital signal processing and their applications (examples from speech and biological signal processing): discrete-time signals and systems, signal characteristics in time and frequency domain, Fourier transform, fast algorithms for DFT computation, introduction to digital filter design, digital filtering in time and frequency domain, decimation and interpolation and their usage in filter banks, basics of LPC analysis. Further details can be found at http://noel.feld.cvut.cz/vyu/be2m31dspa ; http://noel.feld.cvut.cz/vyu/be2m31dspa .	Z,ZK	6

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, principles and protocols 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 problems related to deployment of wireless networks, their operation or development of wireless networks components.			
BE2M32MKSA	Mobile Networks	Z,ZK	6
P edm t seznamuje s principy a funkcemi mobilních bu kových sítí zejména s ohledem na aktuáln nasazované a budoucí technologie pro mobilní komunikace. Student pochopí architekturu a principy fungování jednotlivých generací mobilních sítí od GSM, p es UMTS a LTE až k LTE-A. P edm t studenty seznámí i s vybranými technikami a zp soby komunikace pro bu kové mobilní sít p íší generace (5G). Po absolvování p edm tu se studenti dokáží orientovat v problematice bu kových mobilních sítí a budou schopní ešit problémy spojené s provozem a plánováním t chto sítí.			
BE2M34NSV	VLSI System Design	Z,ZK	6
P edm t seznamuje studenta se základy návrhu, syntézy a verifikace systém velmi vysoké integrace a systém na ípu. Student se seznámí se základními stavebními prvky, architekturou a návrhovými postupy využívanými p í realizaci komplexních integrovaných systém , zp soby jejich popisu a postupem jejich syntézy. Nau í se verifika ní strategii, navrhovat a analyzovat testy. Cvi ení jsou pak zam ena na praktický návrh, syntézu a verifikaci rekonfigurovatelného systému na ípu v jazyku popisujícím hardware (VHDL, Verilog).			
BE2M37ART	Architecture of radio receivers and transmitters	Z,ZK	6
The subject deals with the architecture of the radio receivers and transmitters and software radio. The student s familiarize with the design and the modern methods of optimization of the radio receivers and transmitters' functional blocks and with the phenomena related with frequency conversion, noise sources and noise analyses. They learn conceptual radio receiver and transmitter design, including the level and frequency plans and their optimization. The course also deals with the digital signal processing blocks of the modern radio receivers and their practical implementation.			
BE2M37DKM	Digital communications	Z,ZK	6
The course provides fundamentals of digital communications theory: modulation, classical coding, channel models, and basic principles of decoding. The exposition is systematically built along the theoretical lines which allow to reveal all inner connections and principles. This allows students to develop the knowledge and use it in an active way in a design and construction of the communication systems. The course provides a necessary fundamental background for subsequent more advanced communications theory courses.			
BE2M37DTRA	Digital Video and Audio Broadcasting	Z,ZK	6
The subject makes students familiar with topics related to video and audio transmission. Described are methods of data stream creation, methods of source and channel coding, error correction principles and modulation formats. Attention is paid to transmission systems standards with regard to transmission channel properties. The subject also deals with multimedia data services and with measurement in transmission systems.			
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 external circuit to the processor 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 combination of both. After completion of this subject student should be able to design and implement simpler microprocessor system including connection of necessary peripherals and software design.			
BE2M37RNVA	Radio Navigation	Z,ZK	6
The course introduces students to the terrestrial and satellite radio navigation and radar systems. Students get knowledge of the radio navigation systems, and of the structure of navigation and radar signals and methods of their processing. They become familiar with coordinate systems, fundamentals of celestial mechanics, and methods of position estimation. Students get knowledge of practical applications and the integration of navigation systems.			
BE2MPROJ6	Projekt - project	Z	6
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			
BEEZM	Safety in Electrical Engineering for a master's degree	Z	0
Školení seznamuje studenty všech program magisterského studia s elektrickými riziky oboru. Studenti získají pot ebnou elektrotechnickou kvalifikaci pro innost na VUT FEL v souladu s platnými p edpisy. Školení se provádí podle p edlohy BEZB. Obsahuje Opakované Základní školení BOZP.			

Aktualizace výše uvedených informací naleznete na adrese <http://bilakniha.cvut.cz/cs/f3.html>

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