# Study plan

# Name of study plan: Electronics and Communications - Radio Communications and **Systems**

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: Electronics and Communications Type of study: Follow-up master full-time Required credits: 109 Elective courses credits: 11 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: 79 The role of the block: P

Code of the group: 2018 MEKDIP Name of the group: Diploma Thesis Requirement credits in the group: In this group you have to gain 25 credits Requirement courses in the group: In this group you have to complete 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) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BDIP25	Diploma Thesis	Z	25	22s	L	Р

## Characteristics of the courses of this group of Study Plan: Code=2018\_MEKDIP Name=Diploma Thesis

BDIP25	Diploma Thesis	Z	25				
Independent final comp	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.							

## Code of the group: 2018\_MEKP7

Name of the group: Compulsory subjects of the programme Requirement credits in the group: In this group you have to gain 54 credits Requirement courses in the group: In this group you have to complete 9 courses Credits in the group: 54 Specializace radiové systémy 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
B2M17ANT	Antennas Pavel Hazdra, Miloš Mazánek, Jan Kra ek Jan Kra ek Pavel Hazdra (Gar.)	Z,ZK	6	2P+2L	L	Ρ
B2M37ART	Architecture of radio receivers and transmitters Josef Dobeš, Pavel Ková Karel Ulovec Pavel Ková (Gar.)	Z,ZK	6	2P+2L	Z	Р
B2M32BTSA	Wireless Technologies Zden k Be vá , Lukáš Vojt ch, Zbyn k Kocur, Pavel Mach <b>Ján Ku erák</b> Zden k Be vá (Gar.)	Z,ZK	6	2P + 2L	L	Р
B2M37DKM	Digital communications Jan Sýkora Jan Sýkora Jan Sýkora (Gar.)	Z,ZK	6	3P+1C	Z	Ρ
B2M37MAM	Microprocessors Petr Skalický, Stanislav Vítek Stanislav Vítek (Gar.)	Z,ZK	6	2P+2L	Z	Ρ
B2M17MIOA	Microwave Circuits Karel Hoffmann, P emysl Hudec P emysl Hudec Milan Polívka (Gar.)	Z,ZK	6	2P+2C	Z	Р

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B2M31DSP	Advanced DSP methods Pavel Sovka, Petr Pollák Pavel Sovka Pavel Sovka (Gar.)	Z,ZK	6	2P+2C	Z,L	Р
B2MPROJ6	Project Ji í Jakovenko, Pavel Máša, Ivan Pravda, František Rund, Jan Šístek, Lubor Jirásek, Tomáš Zeman, Ladislav Oppl <b>František Rund</b> František Rund (Gar.)	Z	6	0p+6s	Z,L	Р
B2M17SBS	Wave Propagation for Wireless Links Pavel Pecha Pavel Pecha Pavel Pecha (Gar.)	Z,ZK	6	2P+2C	L	Р
Characteristics of the	courses of this group of Study Plan: Code=2018_MEKP7 Name	e=Compulso	rv suhie	ects of the	e program	me
	tennas	<u></u>	i y ouioje		ZK	6
	edge about theory of electromagnetic field radiation and basic principles of antenna de	sian Methods of	analveie a	1	· I	-
	eminars are both theoretical (analytical and numerical calculation using MATLAB and E	•				
parameters).			n) and pla			terina
, ,	white stures of realist receivers and transmitters				71/	
B2M37ART Architecture of radio receivers and transmitters The subject deals with the architecture of the radio receivers and transmitters and software radio. The student s familiarize with the design and the					.,ZK	6
			0			
	mitters' functional blocks and with the phenomena related with frequency conversion, r					
	gn, including the level and frequency plans and their optimization. The course also dea	is with the digital	signal proc	cessing block	s of the mod	ern radio
receivers and their practical i						
	reless Technologies				"ZK	6
, v	f fundamental principles of wireless networks in various areas of their application. Stud					
-	es and learn how these technologies can be exploited in real world applications. The go	al is to teach stud	lents how to	o solve probl	ems related to	o deployment
of wireless networks, their op	peration or development of wireless networks components.					
B2M37DKM Dig	jital communications			Z	"ZK	6
The course provides fundam	entals of digital communications theory: modulation, classical coding, channel models,	and basic princip	oles of deco	oding. The ex	position is sy	stematically
built along the theoretical line	es which allow to reveal all inner connections and principles. This allows students to de	velop the knowle	dge and us	e it in an act	ive way in a d	esign and
construction of the communic	cation systems. The course provides a necessary fundamental background for subsequents	uent more advand	ced commu	inications the	eory courses.	
B2M37MAM Mic	croprocessors			Z	"ZK	6
The aim is to make students	acquainted with the properties of microprocessor systems, make students familiar with	on-chip periphe	rals, conne	ct external c	rcuit to the pi	ocessor bus,
and with implementation of th	ne memory or I/O space address extension. Next, taught the students to make simple p	program in the as	sembly lan	guage, C lar	guage and c	ombination of
both. After completion of this	subject student should be able to design and implement simpler microprocessor syste	m including conn	ection of n	ecessary pe	ripherals and	software
design.		Ū				
B2M17MIOA Mic	crowave Circuits			Z	"ZK	6
Subject is focused on the des	sign of planar passive and active microwave circuits.			1	, 1	-
	vanced DSP methods			7	.ZK	6
	course in signal processing and introduces advanced methods of analysis and digital si	ianal processing	Graduates	1	, I	-
	ically use them. They learn to know the conditions of use of correlation, spectral and co					
	ition and independent component analysis and the time-frequency transformations. En			• •		
analyses.				donity to int		and of orginal
	niect				7	6
B2MPROJ6   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						-
	ject will be defended within the framework of a subject. Project list http://www.fel.cvut.c	-			y branch dep	
			emesual-p			6
	ve Propagation for Wireless Links		4 4 - 1 - 1	1	,ZK	-
	udy the wireless transmission channel in real environments focusing on wave propagation					
	cal foundations of radio wave propagation in the atmosphere as well as ITU-R design pro	cedures for terres	u iai and sa	leilite, fixed a	nd mobile cor	ninunications
in various frequency bands.						

## Name of the block: Compulsory elective courses Minimal number of credits of the block: 30 The role of the block: PV

Code of the group: 2018\_MEKPV7 Name of the group: Compulsory subjects of the programme Requirement credits in the group: In this group you have to gain 30 credits Requirement courses in the group: In this group you have to complete 5 courses Credits in the group: 30 Note on the group: Specializace radiové systémy

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) **Experimental Data Analysis** B2M31AEDA Z,ZK 2P+2C Ζ 6 P٧ Jan Rusz Jan Rusz Jan Rusz (Gar.) CAD in HF Technique Zbyn k Škvor Zbyn k Škvor (Gar.) B2M17CADA Z,ZK 6 2P+2C L P٧ **Digital Video and Audio Broadcasting** B2M37DTRA Z,ZK 2P+2L Ζ 6 ΡV Karel Ulovec, Martin Bernas Karel Ulovec (Gar.) Coding in digital communications Jan Sýkora Jan Sýkora Jan Sýkora (Gar.) B2M37KDKA Z,ZK 6 3P+1C L P٧

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B2M17MIMA	Microwave Measurements Karel Hoffmann, P emysl Hudec Viktor Adler P emysl Hudec (Gar.)	Z,ZK	6	2P+2L	L	PV
B2M32MKSA	Mobile Networks Zden k Be vá, Pavel Mach, Robert Bešák Pavel Mach Zden k Be vá (Gar.)	Z,ZK	6	2P + 2L	Z	PV
B2M17NKA	Antennas Design and Technology Pavel Hazdra, Miloš Mazánek, Milan Polívka, Milan Švanda <b>Milan Švanda</b> Milan Polívka (Gar.)	Z,ZK	6	2P+2L	Z	PV
B2M34NSV	VLSI System Design Pavel Hazdra, Jakub Jirsa Pavel Hazdra Pavel Hazdra (Gar.)	Z,ZK	6	2P+2L	Z	PV
B2M99RAD	Radar systems Pavel Ková, Pavel Puri er, Tomáš Ko ínek Tomáš Ko ínek Tomáš Ko ínek (Gar.)	Z,ZK	6	2P+2L	Z	PV
B2M37RNVA	Radio Navigation Pavel Ková Pavel Ková (Gar.)	Z,ZK	6	2P+2L	L	PV
haracteristics of th	ne courses of this group of Study Plan: Code=2018_MEKPV7 Nan	ne=Compul	sorv sub	piects of t	he proar	amme
	Experimental Data Analysis		<b>,</b>		ZK	6
1	xperimental Data Analysis", students will acquire knowledge regarding fundamental meth	ods for data an	alvsis and r	1	, 1	-
-	e course of practical lectures, students will solve individual tasks using real data from sign		-		-	
•	complex task and present obtained results. The aim of the subject is to introduce practical					
	Iking and to acquire additional knowledge in solution of practical tasks.		andamonta	olaliolioai ma		
	CAD in HF Technique			7	"ZK	6
1	and techniques used in modern microwave circuit design.				., <b>Z</b> IX	0
miloduction into principles	and techniques used in modern microwave circuit design.			7	ZK	
	Visitel Vislee and Audie Dreedeesting				/n	6
1	Vigital Video and Audio Broadcasting		-4'	1	,	-
The subject makes studen	ts familiar with topics related to video and audio transmission. Described are methods of o			ods of source	and channe	el coding, er
The subject makes student correction principles and m	ts familiar with topics related to video and audio transmission. Described are methods of a nodulation formats. Attention is paid to transmission systems standards with regard to trans			ods of source	and channe	el coding, err
The subject makes studen correction principles and m data services and with mea B2M37KDKA C	ts familiar with topics related to video and audio transmission. Described are methods of o hodulation formats. Attention is paid to transmission systems standards with regard to trans asurement in transmission systems. Coding in digital communications	smission channe	el properties	ods of source a. The subject	and channe also deals v	el coding, err vith multimed 6
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The subject makes student correction principles and m data services and with mer B2M37KDKA C This course extends and d Theory develop a framewo of block and convolutional iterative and multi-user der B2M17MIMA M Fast development of wirele frequency band ranging fro methods used in this field. I Even relatively complex me practical measurements co components, circuits, subs B2M32MKSA M The lectures introduce prin and fundamental principles B2M17NKA A Basics of practical antenna of antenna construction us B2M34NSV V Introduction to basic buildii Integrated system descript systems. In seminars and I B2M99RAD R B2M37RNVA R The course introduces stud	ts familiar with topics related to video and audio transmission. Described are methods of or nodulation formats. Attention is paid to transmission systems standards with regard to trans- asurement in transmission systems. Coding in digital communications eepens the topics of the basic communication theory courses in the following main areas. rk for understanding the principles of the channel coding in single-user and multi-node/mu codes. 3) Advanced coding technique focuses on turbo, LDPC, Space-Time codes and W coding is a fundamental tool for decoding capacity approaching channel codes. <b>Microwave Measurements</b> ess radio data communications (both mobile and stationary) also results in requirements for m hundreds of MHz to tens of GHz. The "Microwave measurements" subject brings descr Instructions devoted to measurement devices also cover detailed inner structures, principle easurement instruments and setups are discussed, for example those used for measurem monely performed in the wireless communication field. Besides modern measurement inst systems and digitally modulated signals. <b>Nobile Networks</b> toples and functionalities of mobile networks with special focus on currently deployed tects is of GSM, UMTS, LTE/LTE-A, and 5G will be explained. Then, selected key technologies f <b>Intennas Design and Technology</b> a design for selected frequency bands and communication, identification and radar service store and synthesis using cell libraries and IP cores. Synchronization, power consumption a labs, the hardware description language VHDL will be explained and used for practical de <b>Radar systems</b> <b>Radio Navigation</b>	1) Advanced ind ti-user scenario lireless Network or measuremen iption of all impo- es of operation, o nent of noise an truments, studer hnologies and fi for future mobile s. Modelling (ful easurements.	el properties formation th ss. 2) The al c Coding. 4) it of numero prtant meas common me d non-linea nts also lear uture mobil e networks ( l-wave anal gital and an eduction iss and testing	bods of source s. The subject a cory in coding gebraic codin Advanced de a codin Advanced de a codin	and channel also deals v ,,ZK g and Network g and Network g and Network g and Network g and Network g cooling tech cooling tech coolin	el coding, er vith multime 6 ork Informat classical top inique, nam 6 imeters in 1 measurem otimum setti are focused and microwa 6 architectur 6 s and specif 6 subsystems y of integrat 6 tructure of

Name of the block: Elective courses Minimal number of credits of the block: 0 The role of the block: V

Code of the group: 2018\_MEKH Name of the group: Humanities subjects 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
B0M16FIL	Peter Zamarovský Peter Zamarovský Peter Zamarovský (Gar.)	Z,ZK	5	2P+2S	Z,L	V
B0M16HVT	History of science and technology 2 Marcela Efmertová, Jan Mikeš Marcela Efmertová Marcela Efmertová (Gar.)	Z,ZK	5	2P+2S	Z,L	V
B0M16HSD1	History of economy and social studies Marcela Efmertová	Z,ZK	5	2P+2S	Z,L	V
B0M16PSM	<b>Psychology</b> Jan Fiala <b>Jan Fiala</b> Jan Fiala (Gar.)	Z,ZK	5	2P+2S	Z,L	V
A003TV	Physical Education Ji í Drnek	Z	2	0+2	L,Z	V
B0M16TEO	Theology Vladimír Sláme ka Vladimír Sláme ka Vladimír Sláme ka (Gar.)	Z,ZK	5	2P+2S	Z,L	V

## Characteristics of the courses of this group of Study Plan: Code=2018\_MEKH Name=Humanities subjects

B0M16FIL		Z,ZK	5		
B0M16HVT	History of science and technology 2	Z,ZK	5		
This subject traces his	orical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate s	, tudents' interest in	the history and		
traditions of the subject	t, while highlighting the developments in technical education and professional organizations, the process of shaping scientific	life and the influe	nce of technical		
engineers					
B0M16HSD1	History of economy and social studies	Z,ZK	5		
This subject deals with	the history of the Czech society in the 19th - 21th centuries. It follows the forming of the Czech political representation, its air	ns and achieved r	esults as well as		
the social and cultural	development and coexistence of the various ethnical groups in the Czech countries.				
B0M16PSM	Psychology	Z,ZK	5		
A003TV	Physical Education	Z	2		
B0M16TEO	Theology	Z,ZK	5		
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 l	know Christianity		
- religion from which g	aws our civilization up.				

## Code of the group: MTV

Name of the group: Physical education

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
TVV	Physical education	Z	0	0+2	Z,L	V
A003TV	Physical Education Ji í Drnek	Z	2	0+2	L,Z	V
TV-V1	Physical education	Z	1	0+2	Z,L	V
TVV0	Physical education	Z	0	0+2	Z,L	V
TVKLV	Physical Education Course	Z	0	7dní	L	V
TVKZV	Physical Education Course	Z	0	7dní	Z	V

#### Characteristics of the courses of this group of Study Plan: Code=MTV Name=Physical education

A003TV	Physical Education	Z	2
TVV	Physical education	Z	0
TV-V1	Physical education	Z	1
TVV0	Physical education	Z	0
TVKLV	Physical Education Course	Z	0
TVKZV	Physical Education Course	Z	0

Code of the group: 2018\_MEKVOL 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: ~Nabío

~Nabídku volitelných předmětů uspořádaných podle kateder najdete na webových stránkách http://www.fel.cvut.cz/cz/education/volitelne-predmety.html\\

# List of courses of this pass:

Code	Name of the course	Completion	Credits
A003TV	Physical Education	Z	2
B0M16FIL		Z,ZK	5
B0M16HSD1	History of economy and social studies	Z,ZK	5
	vith the history of the Czech society in the 19th - 21th centuries. It follows the forming of the Czech political representation, its aims a the social and cultural development and coexistence of the various ethnical groups in the Czech countries.	nd achieved result	s as well as
B0M16HVT	History of science and technology 2	Z,ZK	5
	historical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate stude	,	
traditions of the sul	oject, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life engineers	and the influence	of technical
B0M16PSM	Psychology	Z,ZK	5
B0M16TEO	Theology	Z,ZK	5
	les to students the basic orientation in christian theology and requires no special previous education. After short philosophic lecture t he subject is determined not only to believer students who want to know the reliable theologic grounding but also above all to ones who - religion from which graws our civilization up.	•	
B2M17ANT	Antennas	Z,ZK	6
-	rong knowledge about theory of electromagnetic field radiation and basic principles of antenna design. Methods of analysis are demo neir arrays. Seminars are both theoretical (analytical and numerical calculation using MATLAB and EM simulators CST) and practical parameters).		
B2M17CADA	CAD in HF Technique Introduction into principles and techniques used in modern microwave circuit design.	Z,ZK	6
B2M17MIMA	Microwave Measurements	Z,ZK	6
	t of wireless radio data communications (both mobile and stationary) also results in requirements for measurement of numerous rela		
	ging from hundreds of MHz to tens of GHz. The "Microwave measurements" subject brings description of all important measurement i		
	s field. Instructions devoted to measurement devices also cover detailed inner structures, principles of operation, common measurement		0
	plex measurement instruments and setups are discussed, for example those used for measurement of noise and non-linear paramet ents commonly performed in the wireless communication field. Besides modern measurement instruments, students also learn a numb		
practical measurem	components, circuits, subsystems and digitally modulated signals.		merowave
B2M17MIOA	Microwave Circuits	Z,ZK	6
	Subject is focused on the design of planar passive and active microwave circuits.	-	
B2M17NKA	Antennas Design and Technology	Z,ZK	6
Basics of practical a	antenna design for selected frequency bands and communication, identification and radar services. Modelling (full-wave analysis), des		nd specifics
D01470D0	of antenna construction using professional software tools. Design and manufacture of antenna sample. Practical measuremen		0
B2M17SBS	Wave Propagation for Wireless Links se is to study the wireless transmission channel in real environments focusing on wave propagation for planning of terrestrial and satel	Z,ZK lite wireless links T	6 be svilabus
	er theoretical foundations of radio wave propagation in the atmosphere as well as ITU-R design procedures for terrestrial and satellite, fixe		-
·	in various frequency bands.		
B2M31AEDA	Experimental Data Analysis	Z,ZK	6
	ubject "Experimental Data Analysis", students will acquire knowledge regarding fundamental methods for data analysis and machine	•	
-	a. In the course of practical lectures, students will solve individual tasks using real data from signal processing in neuroscience resea		
project, student wil	solve complex task and present obtained results. The aim of the subject is to introduce practical application of fundamental statistica students to use critical thinking and to acquire additional knowledge in solution of practical tasks.	al methods as well	as to teach
B2M31DSP	Advanced DSP methods	Z,ZK	6
	the basic course in signal processing and introduces advanced methods of analysis and digital signal processing. Graduates will learn		
	le to practically use them. They learn to know the conditions of use of correlation, spectral and coherent analysis of random signals.		
methods of signal of	decomposition and independent component analysis and the time-frequency transformations. Emphasis will be placed on an ability to analyses.	o interpret the resu	lts of signal
B2M32BTSA	Wireless Technologies	Z,ZK	6
-	verview of fundamental principles of wireless networks in various areas of their application. Students will understand architecture, pri		
different wireless te	chnologies and learn how these technologies can be exploited in real world applications. The goal is to teach students how to solve put of wireless networks, their operation or development of wireless networks components.	roblems related to	deployment
B2M32MKSA	Mobile Networks	Z,ZK	6
	luce principles and functionalities of mobile networks with special focus on currently deployed technologies and future mobile network		
	nental principles of GSM, UMTS, LTE/LTE-A, and 5G will be explained. Then, selected key technologies for future mobile networks (f		
B2M34NSV	VLSI System Design	Z,ZK	6
Introduction to bas	sic building blocks, architecture and design methodologies of advanced VLSI systems. Structure and design of digital and analogue in	ntegrated circuit su	bsystems.
	description and synthesis using cell libraries and IP cores. Synchronization, power consumption and parasitics reduction issues. Testi		-
	n seminars and labs, the hardware description language VHDL will be explained and used for practical design, synthesis and testing	-	-
B2M37ART	Architecture of radio receivers and transmitters vith the architecture of the radio receivers and transmitters and software radio. The student s familiarize with the design and the mode	Z,ZK	6 imization of
	with the architecture of the radio receivers and transmitters and software radio. The student's familiarize with the design and the mode is and transmitters' functional blocks and with the phenomena related with frequency conversion, noise sources and noise analyses.	•	
	smitter design, including the level and frequency plans and their optimization. The course also deals with the digital signal processing		
	receivers and their practical implementation.		

B2M37DKM	Digital communications	Z,ZK	6
	es fundamentals of digital communications theory: modulation, classical coding, channel models, and basic principles of decoding. Th		
U U	oretical lines which allow to reveal all inner connections and principles. This allows students to develop the knowledge and use it in a	•	٠ ١
construction	of the communication systems. The course provides a necessary fundamental background for subsequent more advanced communi	cations theory cou	rses.
B2M37DTRA	Digital Video and Audio Broadcasting	Z,ZK	6
	students familiar with topics related to video and audio transmission. Described are methods of data stream creation, methods of so		<b>.</b>
correction principle	s and modulation formats. Attention is paid to transmission systems standards with regard to transmission channel properties. The sub	ject also deals with	multimedia
	data services and with measurement in transmission systems.		
B2M37KDKA	Coding in digital communications	Z,ZK	6
	s and deepens the topics of the basic communication theory courses in the following main areas. 1) Advanced information theory in co	•	
, , ,	amework for understanding the principles of the channel coding in single-user and multi-node/multi-user scenarios. 2) The algebraic c	•.	
of block and convol	utional codes. 3) Advanced coding technique focuses on turbo, LDPC, Space-Time codes and Wireless Network Coding. 4) Advance	d decoding technic	jue, namely
	iterative and multi-user decoding is a fundamental tool for decoding capacity approaching channel codes.		
B2M37MAM	Microprocessors	Z,ZK	6
	students acquainted with the properties of microprocessor systems, make students familiar with on-chip peripherals, connect extern		
	ation of the memory or I/O space address extension. Next, taught the students to make simple program in the assembly language, C		
both. After compl	etion of this subject student should be able to design and implement simpler microprocessor system including connection of necessa	ary peripherals and	i software
	design.		
B2M37RNVA	Radio Navigation	Z,ZK	6
	duces students to the terrestrial and satellite radio navigation and radar systems. Students get knowledge of the radio navigation syst		
navigation and rada	ar signals and methods of their processing. They become familiar with coordinate systems, fundamentals of celestial mechanics, and n	nethods of position	estimation.
	Students get knowledge of practical applications and the integration of navigation systems.		
B2M99RAD	Radar systems	Z,ZK	6
B2MPROJ6	Project	Z	6
	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 specif		artment or
branc	h departments. The project will be defended within the framework of a subject. Project list http://www.fel.cvut.cz/en/education/semest	tral-projects.html	
BDIP25	Diploma Thesis	Z	25
	comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or h		
be specified b	y 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.
TV-V1	Physical education	Z	1
TVKLV	Physical Education Course	Z	0
TVKZV	Physical Education Course	Z	0
TVV	Physical education	Z	0
TVV0	Physical education	Z	0

For updated information see <u>http://bilakniha.cvut.cz/en/f3.html</u> Generated: day 2025-07-04, time 03:39.