

# Recomended pass through the study plan

## Name of the pass: Biomedical informatics 23/24, 24/25, 25/26

Faculty/Institute/Others:

Department:

Pass through the study plan: Biomedical informatics

Branch of study guaranteed by the department: Welcome page

Guarantor of the study branch:

Program of study: Informatics and Cybernetics in Health Care

Type of study: Bachelor full-time

Note on the pass: Informaci o p edepsaném minimálním po tu PV p edm t pro konkrétní jednotlivé semestry najdete v odpovídajícím studijním plánu specializace.

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 assessment, Z - assessment, ZK - examination, L - summer semester, Z - winter semester

Number of semester: 1

Code	Name of the course / Name of the group of courses <i>(in case of groups of courses the list of codes of their members)</i> Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
F7PBKALP	<b>Algorithmization and Programming</b> Pavel Smrk, Tomáš Funda, Tomáš Veselý, Lenka Hanáková <b>Tomáš Funda</b> Pavel Smrk (Gar.)	Z,ZK	6	2P+2C	Z	Z
F7PBKAJ1	<b>English I.</b> Eva Maxová, Eva Motyková <b>Eva Motyková</b> Eva Motyková (Gar.)	KZ	2	2S	Z	Z
17BOZP	<b>Occupational Safety and Health, Fire Protection and First Aid</b> Petr Kudrna <b>Petr Kudrna</b> Petr Kudrna (Gar.)	Z	0	1P	Z	Z
F7PBKKT	<b>Communication Technology</b> Tomáš Funda, Tomáš Veselý, Karel Hána, Martin Vít zník, Markéta Janatová, Aneta Buchtělová, Kateřina Plátová <b>Tomáš Funda</b> Karel Hána (Gar.)	Z,ZK	3	1P+1C	Z	Z
F7PBKLAD	<b>Linear Algebra and Differential Calculus</b> Jiří Neustupa, Jana Urzová Jana Urzová (Gar.)	Z,ZK	6	2P+4C	Z	Z
F7PBKLG	<b>Logic</b> Dagmar Brechlerová <b>Dagmar Brechlerová</b> Dagmar Brechlerová (Gar.)	Z,ZK	5	2P+2C	Z	Z
F7PBKMAZ	<b>Management and Administration in Health Care</b> Jiří Černý <b>Jiří Černý</b> Jiří Černý (Gar.)	KZ	1	1P	Z	Z
F7PBKPND	<b>Presentation Tools and Skills</b> Anna Horáková <b>Anna Horáková</b> Anna Horáková (Gar.)	KZ	2	1P+1C	Z	Z
F7PBKPR1	<b>Project I.</b> Pavel Smrk, Karel Hána, Radim Kliment, Jan Kauler, Radim Kliment, David Jirsa, Radim Krupík, Jan Mužík, Filip Hrdlička, ..... <b>Karel Hána</b> Karel Hána (Gar.)	KZ	5	1S	Z	Z

Number of semester: 2

Code	Name of the course / Name of the group of courses <i>(in case of groups of courses the list of codes of their members)</i> Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
F7PBKAJ2	<b>English II.</b> <b>Eva Motyková</b> Eva Motyková (Gar.)	KZ	2	2S	L	Z
F7PBKDDS	<b>Data and Data Structures</b> Jan Kauler, Radim Krupík <b>Radim Krupík</b> Radim Krupík (Gar.)	Z,ZK	5	2P+2C	L	Z
F7PBKITP	<b>Integral Calculus</b> Jana Urzová <b>Jana Urzová</b> Jana Urzová (Gar.)	Z,ZK	6	2P+4C	L	Z
F7PBKML	<b>Matlab</b> <b>Michal Reimer</b>	KZ	3	2C	L	Z
F7PBKOS	<b>Operating Systems</b> Jan Mužík <b>Jan Mužík</b> Jan Mužík (Gar.)	Z,ZK	4	1P+2C	L	Z
F7PBKPPP	<b>Programming Tools</b> Pavel Smrk, Tomáš Funda, Radim Kliment, Michaela Gaea Olakovová Pavel Smrk Pavel Smrk (Gar.)	KZ	2	2C	L	Z

F7PBKPR2	<b>Project II.</b> Pavel Smrká, Karel Hána, Dagmar Brechlerová, Radim Kliment, Jan Kauler, Jan Mužík, Christiane Malá, Tomáš Kraja, Ondej Klempí, ..... <b>Karel Hána</b> Karel Hána (Gar.)	KZ	5	1S	L	z
F7PBKTVR	<b>Telemedicine and Virtual Reality</b> Pavel Smrká, Karel Hána, Markéta Janatová, Radim Kliment, Vít Janovský, Jiří Brada <b>Karel Hána</b> Karel Hána (Gar.)	KZ	3	2C	L	z

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### Number of semester: 3

Code	Name of the course / Name of the group of courses <i>(in case of groups of courses the list of codes of their members)</i> Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
F7PBKAJ3	<b>English III.</b> Eva Maxová <b>Eva Maxová</b> Eva Maxová (Gar.)	KZ	2	2S	Z	z
F7PBKDS	<b>Database Systems</b> Tomáš Kraja, Slávka Neuková <b>Slávka Neuková</b> Slávka Neuková (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKISZ	<b>Information Systems in Health Care</b> Dagmar Brechlerová, Anna Horáková, David Jirsa, Tomáš Kraja, Zoltán Szabó, Petr Šmid <b>Anna Horáková</b> Zoltán Szabó (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKOOP	<b>Object Oriented Programming</b> Radim Krupíká, Tomáš Kraja <b>Radim Krupíká</b> Radim Krupíká (Gar.)	Z,ZK	3	1P+2C	Z	z
F7PBKPMS-I	<b>Probability and Mathematical Statistics</b> Jan Štrobil, Marek Piorecký <b>Tomáš Nagy</b> Marek Piorecký (Gar.)	Z,ZK	5	2P+2C	Z	z
F7PBKPR3	<b>Project II.</b> Pavel Smrká, Karel Hána, Dagmar Brechlerová, Radim Krupíká, Christiane Malá, Tomáš Kraja, Michal Reimer, Jiří Millek <b>Karel Hána</b> Karel Hána (Gar.)	KZ	5	1S	Z	z
F7PBKUSS	<b>Introduction to Systems and Signals</b> Jan Kauler <b>Jan Kauler</b> Jan Kauler (Gar.)	Z,ZK	5	2P+2C	Z	z
F7PBKZTMS	<b>Fundamentals of Theoretical Medicine - Somatology</b> Martina Dingová Šíliková <b>Martina Dingová Šíliková</b> Martina Dingová Šíliková (Gar.)	Z,ZK	2	2P	Z	z

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### Number of semester: 4

Code	Name of the course / Name of the group of courses <i>(in case of groups of courses the list of codes of their members)</i> Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
F7PBKAJ4	<b>English IV.</b> Eva Maxová <b>Eva Motyková</b> Eva Motyková (Gar.)	KZ	2	2S	L	z
F7PBKAZI-I	<b>Applied Informatics in Health Care</b> Christiane Malá <b>Christiane Malá</b> Christiane Malá (Gar.)	Z,ZK	2	1P+1C	L	z
F7PBKMS-I	<b>Modeling and Stimulation</b> Jan Kauler <b>Jan Kauler</b> Jan Kauler (Gar.)	Z,ZK	5	2P+2C	L	z
F7PBKPS-I	<b>Computer Network</b> Radim Krupíká, Michal Reimer <b>Radim Krupíká</b> Radim Krupíká (Gar.)	Z,ZK	4	2P+2C	L	z
F7PBKPPT-I	<b>Advanced Programming Techniques</b> Radim Krupíká, Tomáš Kraja <b>Radim Krupíká</b> Radim Krupíká (Gar.)	KZ	3	2C	L	z
F7PBKPR4	<b>Project IV.</b> Pavel Smrká, Karel Hána, Dagmar Brechlerová, Radim Krupíká, Jan Mužík, Ján Hýbl, Christiane Malá, Tomáš Kraja, Michal Reimer, ..... <b>Karel Hána</b> Karel Hána (Gar.)	KZ	5	1S	L	z
F7PBKTWA	<b>Web Application Development</b> David Jirsa <b>David Jirsa</b> David Jirsa	Z,ZK	3	1P+2C	L	z
F7PBKZSI	<b>Software Engineering Fundamentals</b> Jan Mužík <b>Jan Mužík</b> Jan Mužík (Gar.)	Z,ZK	4	2P+2C	L	z
F7PBKZTMG-I	<b>Fundamentals of Theoretical Medicine - Genetics and Microbiology</b> Taána Jarošková <b>Taána Jarošková</b> Taána Jarošková (Gar.)	ZK	2	2P	L	z

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### Number of semester: 5

Code	Name of the course / Name of the group of courses <i>(in case of groups of courses the list of codes of their members)</i> Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
F7PBKBPD	<b>Data Transmission and Processing Security</b> Dagmar Brechlerová, Martin Stanek <b>Martin Stanek</b> Dagmar Brechlerová (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKBIA-I	<b>Bioinformatics</b> Ondej Klempí	Z,ZK	4	2P+2C	Z	z

F7PBKPPN	<b>Health Legislation and Standards</b> Peter Kneppo Peter Kneppo (Gar.)	KZ	2	1P+1C	Z	z
F7PBKPR5	<b>Project V.</b> Pavel Smrká, Karel Hána, Dagmar Brechlerová, David Jirsa, Jan Mužík, Christiane Malá, Tomáš Kraja, Michal Reimer, Martin Bejtic, ..... <b>Karel Hána</b> Karel Hána (Gar.)	KZ	6	1S	Z	z
F7PBKSFI	<b>Software Engineering</b> Jan Mužík, Pavel Trnka <b>Jan Mužík</b> Jan Mužík (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKUIEA	<b>Artificial Intelligence and Expert Systems</b>	Z,ZK	4	2P+2C	Z	z
F7PBKZTMF-I	<b>Fundamentals of Theoretical Medicine - Physiology and Pathophysiology</b> Taána Jarošková <b>Taána Jarošková</b> Taána Jarošková (Gar.)	ZK	2	2P	Z	z
F7PBKZOD-I	<b>Image Processing</b> Zoltán Szabó	Z,ZK	4	2P+2C	Z	z

## Number of semester: 6

Code	Name of the course / Name of the group of courses <i>(in case of groups of courses the list of codes of their members)</i> Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
F7PBKATR	<b>Assistive Technology and Robotics in Medicine</b> Jan Kauler Jan Kauler Jan Kauler (Gar.)	Z,ZK	5	2P+2C	L	z
F7PBKBP	<b>Bachelor Thesis</b> Karel Hána, Dagmar Brechlerová, Radim Krupi ka, Jan Mužík, Christiane Malá, Michal Reimer, Jan Broulím, Patrik Pluhovský, Pavla Suchánková <b>Karel Hána</b> Karel Hána (Gar.)	Z	12	2S	L	z
F7PBKBSA-I	<b>Biological Signals</b>	Z,ZK	4	2P+2C	L	z
F7PBKNVMA-I	<b>Design and Development of Mobile Applications</b>	Z,ZK	4	2P+2C	L	z
F7PBKPBIA-I	<b>IT Law and Security</b>	Z,ZK	2	1P+1C	L	z
F7PBKSBP	<b>Bachelor Thesis Seminar</b> Karel Hána, Radim Krupi ka, Christiane Malá <b>Radim Krupi ka</b> Radim Krupi ka (Gar.)	Z	3	2S	L	z

## List of groups of courses of this pass with the complete content of members of individual groups

### List of courses of this pass:

Code	Name of the course	Completion	Credits
17BOZP	Occupational Safety and Health, Fire Protection and First Aid	Z	0
F7PBKAJ1	English I.	KZ	2
F7PBKAJ2	English II.	KZ	2
F7PBKAJ3	English III.	KZ	2
F7PBKAJ4	English IV.	KZ	2
F7PBKALP	Algorithmization and Programming	Z,ZK	6
F7PBKATR	Assistive Technology and Robotics in Medicine	Z,ZK	5
F7PBKAZI-I	Applied Informatics in Health Care	Z,ZK	2
F7PBKPBIA-I	Bioinformatics	Z,ZK	4
F7PBKBP	Bachelor Thesis	Z	12
F7PBKBPD	Data Transmission and Processing Security	Z,ZK	4
F7PBKBSA-I	Biological Signals	Z,ZK	4
F7PBKDDS	Data and Data Structures	Z,ZK	5
F7PBKDS	Database Systems	Z,ZK	4
F7PBKISZ	Information Systems in Health Care	Z,ZK	4
F7PBKITP	Integral Calculus	Z,ZK	6
F7PBKKT	Communication Technology	Z,ZK	3

Význam a praktické použití klasické a SSD pevné disky, paměťové karty, zvukové karty, grafické karty, monitory, klávesnice, myši, tiskárny a skenery, univerzální vstupní porty (USB, USB-C, HDMI, DisplayPort, Thunderbolt, HDMI, S/PDIF), RS232 jako virtuální COM port a jeho použití v praxi, modemy, nejčastěji používané pro poipojení

periferii v mikroprocesorových systémech (IIC, SPI), nejží sbírnice pro komunikaci pístoří a systém ve zdravotnictví, standardizace, operační systémy, mobilní platforma pro snímání, vyhodnocování a přenos dat, rozhraní Bluetooth, NFC, počítačové sítě, LAN, WAN, vrstvový referenční model OSI, základní technické prostředky LAN (Ethernet, WiFi) a jejich praktická realizace), Internet - prohlížeče, používané standardy a jazyky, úvod do architektury TCP/IP, protokoly a adresování, propojování lokálních sítí, brány a směrovače, pojem server, architektura klient-server, nejží používané protokoly v ové architektury TCP/IP: HTTP, FTP, DNS, DHCP, VPN.

F7PBKLAD	Linear Algebra and Differential Calculus	Z,ZK	6
F7PBKLG	Logic	Z,ZK	5
F7PBKMAZ	Management and Administration in Health Care	KZ	1
F7PBKML	Matlab	KZ	3
F7PBKMS-I	Modeling and Stimulation	Z,ZK	5
F7PBKNVMA-I	Design and Development of Mobile Applications	Z,ZK	4
F7PBKOOP	Object Oriented Programming	Z,ZK	3
F7PBKOS	Operating Systems	Z,ZK	4
F7PBKPBIA-I	IT Law and Security	Z,ZK	2
F7PBKPMS-I	Probability and Mathematical Statistics	Z,ZK	5
F7PBKPND	Presentation Tools and Skills	KZ	2
F7PBKPPN	Health Legislation and Standards	KZ	2
F7PBKPPP	Programming Tools	KZ	2
F7PBKPPT-I	Advanced Programming Techniques	KZ	3
F7PBKPR1	Project I.	KZ	5
F7PBKPR2	Project II.	KZ	5
F7PBKPR3	Project III.	KZ	5
F7PBKPR4	Project IV.	KZ	5
F7PBKPR5	Project V.	KZ	6
F7PBKPS-I	Computer Network	Z,ZK	4
F7PBKSBP	Bachelor Thesis Seminar	Z	3
F7PBKSFI	Software Engineering	Z,ZK	4
F7PBKTVR	Telemedicine and Virtual Reality	KZ	3
F7PBKTWA	Web Application Development	Z,ZK	3
F7PBKUIEA	Artificial Intelligence and Expert Systems	Z,ZK	4
F7PBKUSS	Introduction to Systems and Signals	Z,ZK	5
F7PBKZOD-I	Image Processing	Z,ZK	4
F7PBKZSI	Software Engineering Fundamentals	Z,ZK	4
F7PBKZTMF-I	Fundamentals of Theoretical Medicine - Physiology and Pathophysiology	ZK	2
F7PBKZTMR-I	Fundamentals of Theoretical Medicine - Genetics and Microbiology	ZK	2
F7PBKZTMS	Fundamentals of Theoretical Medicine - Somatology	Z,ZK	2

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

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