

# Recomended pass through the study plan

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

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 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 <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 <b>Jana Urzová</b> Eva Feuerstein (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> Christiane Malá, Tomáš Krajc <b>Christiane Malá</b> Christiane Malá (Gar.)	KZ	2	1P+1C	Z	Z
F7PBKPR1	<b>Project I.</b> Pavel Smrk, Karel Hána, Christiane Malá, Tomáš Krajc, Filip Hrdlička, Jaroslav Prchal, Ján Hýbl, Sára Barboríková, Jan Kašpar <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> Eva Maxová	KZ	2	2S	L	Z
F7PBKDDS	<b>Data and Data Structures</b> Radim Krupík, Jan Kauler <b>Radim Krupík</b> Radim Krupík (Gar.)	Z,ZK	5	2P+2C	L	Z
F7PBKITP	<b>Integral Calculus</b> Jana Urzová, Petr Maršílek <b>Petr Maršílek</b> Petr Maršílek (Gar.)	Z,ZK	6	2P+4C	L	Z
F7PBKML	<b>Matlab</b> Michal Reimer	KZ	3	2C	L	Z
F7PBKOS	<b>Operating Systems</b> Jan Mužík, David Gillar, Dominik Fiala <b>Jan Mužík</b> Jan Mužík (Gar.)	Z,ZK	4	1P+2C	L	Z
F7PBKPPP	<b>Programming Tools</b> Pavel Smrk, Radim Kliment, Michaela Gaea olakovová <b>Pavel Smrk</b> Pavel Smrk (Gar.)	KZ	2	2C	L	Z

F7PBKPR2	<b>Project II.</b> Pavel Smrká, Karel Hána, Dagmar Brechlerová, Christiane Malá, Jan Kauler, Jan Mužík, Radim Kliment <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, Jiří Brada, Vít Janovský <b>Karel Hána</b> Karel Hána (Gar.)	KZ	3	2C	L	z

### 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
F7PBKAJ3	<b>English III.</b> Eva Maxová Eva Maxová Eva Maxová (Gar.)	KZ	2	2S	Z	z
F7PBKDS	<b>Database Systems</b> Michal Reimer Michal Reimer	Z,ZK	4	2P+2C	Z	z
F7PBKISZ	<b>Information Systems in Health Care</b> Dagmar Brechlerová, Tomáš Kraja, David Jirsa, Zoltán Szabó, Anna Horáková, Petr Šmid Anna Horáková Zoltán Szabó (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKOOP	<b>Object Oriented Programming</b> Tomáš Kraja, Radim Krupíka Radim Krupíka Radim Krupíka (Gar.)	Z,ZK	3	1P+2C	Z	z
F7PBKPMS-I	<b>Probability and Mathematical Statistics</b> Marek Piorecký Filip Černý Marek Piorecký (Gar.)	Z,ZK	5	2P+2C	Z	z
F7PBKPR3	<b>Project II.</b> Pavel Smrká, Karel Hána, Dagmar Brechlerová, Tomáš Kraja, Michal Reimer Karel Hána Karel Hána (Gar.)	KZ	5	1S	Z	z
F7PBKUSS	<b>Introduction to Systems and Signals</b> Ondřej Klempíř Ondřej Klempíř (Gar.)	Z,ZK	5	2P+2C	Z	z
F7PBKZTMS	<b>Fundamentals of Theoretical Medicine - Somatology</b> Ondřej Klempíř Ondřej Klempíř (Gar.)	Z,ZK	2	2P	Z	z

### 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
F7PBKAJ4	<b>English IV.</b> Eva Maxová Eva Motyková Eva Motyková (Gar.)	KZ	2	2S	L	z
F7PBKAZI-I	<b>Applied Informatics in Health Care</b> Christiane Malá	Z,ZK	2	1P+1C	L	z
F7PBKMS-I	<b>Modeling and Stimulation</b> Jan Kauler	Z,ZK	5	2P+2C	L	z
F7PBKPS-I	<b>Computer Network</b> Radim Krupíka, Michal Reimer Radim Krupíka Radim Krupíka (Gar.)	Z,ZK	4	2P+2C	L	z
F7PBKPPT-I	<b>Advanced Programming Techniques</b> Radim Krupíka Radim Krupíka Radim Krupíka (Gar.)	KZ	3	2C	L	z
F7PBKPR4	<b>Project IV.</b> Karel Hána, Dagmar Brechlerová, Christiane Malá, Michal Reimer, Jan Mužík, Martin Bejtlic, Jan Broulím, Patrik Pluhovský, Pavla Sucháňková Karel Hána Karel Hána (Gar.)	KZ	5	1S	L	z
F7PBKTWA	<b>Web Application Development</b> David Jirsa David Jirsa	Z,ZK	3	1P+2C	L	z
F7PBKZSI	<b>Software Engineering Fundamentals</b> Jan Mužík, David Gillar, Dominik Fiala Jan Mužík Jan Mužík (Gar.)	Z,ZK	4	2P+2C	L	z
F7PBKZTMRG-I	<b>Fundamentals of Theoretical Medicine - Genetics and Microbiology</b> Ondřej Klempíř Ondřej Klempíř (Gar.)	ZK	2	2P	L	z

### Number of semester: 5

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
F7PBKBPD	<b>Data Transmission and Processing Security</b> Dagmar Brechlerová, Martin Stanek Martin Stanek Dagmar Brechlerová (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKBIA-I	<b>Bioinformatics</b> Ondřej Klempíř Ondřej Klempíř (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKPPN	<b>Health Legislation and Standards</b> Vojtěch Kamenský, Ondřej Gajdoš, Peter Kneppo Vojtěch Kamenský Peter Kneppo (Gar.)	KZ	2	1P+1C	Z	z

F7PBKPR5	<b>Project V.</b> Karel Hána, Dagmar Brechlerová, Christiane Malá, Michal Reimer, Jan Mužík, Martin Bejtlic, Jan Broulím, Patrik Pluhovský, Pavla Suchánková <b>Karel Hána</b> Karel Hána (Gar.)	KZ	6	1S	Z	z
F7PBKSFI	<b>Software Engineering</b> Jan Mužík, Dominik Fiala, Pavel Trnka <b>Jan Mužík</b> Jan Mužík (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKUIEA	<b>Artificial Intelligence and Expert Systems</b> <i>Ond ej Klempí Ond ej Klempí</i> (Gar.)	Z,ZK	4	2P+2C	Z	z
F7PBKZTMF-I	<b>Fundamentals of Theoretical Medicine - Physiology and Pathophysiology</b>	ZK	2	2P	Z	z
F7PBKZOD-I	<b>Image Processing</b> Zoltán Szabó, Jan Tesa <b>Zoltán Szabó</b> Zoltán Szabó (Gar.)	Z,ZK	4	2P+2C	Z	z

## Number of semester: 6

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
F7PBKATR	<b>Assistive Technology and Robotics in Medicine</b> Jan Kauler <b>Jan Kauler</b> Jan Kauler (Gar.)	Z,ZK	5	2P+2C	L	z
F7PBKBP	<b>Bachelor Thesis</b> Karel Hána, Dagmar Brechlerová, Christiane Malá, Radim Krupi ka, Michal Reimer, Jan Mužík, Jan Broulím, Patrik Pluhovský, Pavla Suchánková <b>Karel Hána</b> Karel Hána (Gar.)	Z	12	2S	L	z
F7PBKBSA-I	<b>Biological Signals</b> <i>Ond ej Klempí Ond ej Klempí</i> (Gar.)	Z,ZK	4	2P+2C	L	z
F7PBKNVMA-I	<b>Design and Development of Mobile Applications</b> <i>Ond ej Klempí Ond ej Klempí</i> (Gar.)	Z,ZK	4	2P+2C	L	z
F7PBKPBIA-I	<b>IT Law and Security</b> <i>Ond ej Klempí Ond ej Klempí</i> (Gar.)	Z,ZK	2	1P+1C	L	z
F7PBKSBP	<b>Bachelor Thesis Seminar</b> Karel Hána, Christiane Malá, Radim Krupi ka <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
F7PBKDSD	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 příklady nasazení informačních a komunikačních technologií ve zdravotnictví. Historie, základní struktura a rozdílení počítacího, motherboard, sběrnice, BIOS, autotest, procesor, operační paměť, klasické a SSD pevné disky, paměťové karty, zvukové karty, grafické karty, monitory, klávesnice, myši, tiskárny a skenery, univerzální vstupní a výstupní porty (USB, USB-C, HDMI, DisplayPort, Thunderbolt, HDMI, S/PDIF), RS232 jako virtuální COM port a jeho použití v praxi, modemy, nejastříší sběrnice pro připojování periferií v mikroprocesorových systémech (IIC, SPI), nejastříší sběrnice pro komunikaci s čipem a systémem ve zdravotnictví, standardizace, operační systémy, mobilní platforma pro

snímání, vyhodnocování a počítání dat, rozhraní Bluetooth, NFC, počítání výsledků sítí, 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 směrovníky, pojemy „server“, architektura klient-server, nejde o používané protokoly sítě a 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
F7PBKZTMG-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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