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@HORYZONT
WROCŁAWSKA WYŻSZA SZKOŁA INFORMATYKI STOSOWANEJ

Bioinformatics – first-cycle study programme, part-time studies

Department	Faculty of Bioinformatics
Field of study	Bioinformatics
Level of studies	First-cycle study programme
Profile of studies	Practical
Form of studies	Part-time studies
Duration of studies	8 semesters
Degree	Bachelor of Engineering
ECTS	210
The total number of hours	1467
Length of apprentinceships	6 months (24 weeks)

Specialty: Biological Data Analysis and Processing

No.	Course	Semester	ECTS
1	English Classes I	1	2
2	OSH and Ergonomics	1	2
3	Elective Course I (Basics of Entrepreneurship, Philosophy)	1	3
4	Elective Course II (Business plan, Sociology)	1	3

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5	Basics of Mathematics	1	3
6	Introduction to Computer Graphics	1	2
7	Information Technologies	1	2
8	Inorganic Chemistry	1	5
9	Basics of Logic and Set Theory	1	4
10	Basics of Biology	1	4
11	English Classes II	2	2
12	Physics	2	4
13	C++ I	2	3
14	Linear Algebra with Analytic Geometry	2	4
15	Mathematical Analysis I	2	4
16	Organic Chemistry	2	5
17	Cell Biology	2	2
18	Apprenticeships	2	6
19	English Classes III	3	2
20	Elective Course III (Business Financing, Economics)	3	3
21	C++ II	3	2
22	Algorithms and Data Structures	3	4
23	Mathematical Analysis II	3	3

24	Biochemistry	3	5
25	Quantum Physics	3	3
26	Genetics	3	3
27	Technical English I	4	2
28	Numerical Methods	4	2
29	Elective Course IV (Java, Software Engineering)	4	2
30	Methods of Artificial Intelligence	4	4
31	Molecular Biology	4	3
32	Molecular Modeling	4	4
33	Quantum Chemistry	4	5
34	Apprenticeships	4	6
35	Databases	5	4
36	Fundamentals of Statistical and Probabilistic Methods	5	2
37	Technical English II	5	2
38	Elective Course V (Cisco Network Services, Computer Decision Support Systems)	5	3
39	Neural Networks	5	4
40	Drug Design	5	5
41	Genotypic Data Exploration Techniques	5	3

42	High Performance Computing in Biological Sciences	5	2
43	Elective Course VI (Biostatistics, Medical Databases)	6	4
44	Molecular Modeling of Proteins	6	3
45	Calculation Methods of Quantum Chemistry	6	2
46	Apprenticeships	6	4
47	Biological Sequence Analysis	6	3
48	Team Project I (specialty-oriented)	6	3
49	Methods for Analyzing the Genetic Structure of Population	6	4
50	Genomics and Transcriptomics	7	3
51	Diploma Workshop I	7	5
52	Diploma Seminar I	7	5
53	Data Mining Techniques in Biological Research	7	5
54	Project (specialty-oriented)	7	3
55	Monograph Course I (specialty-oriented)	7	3
56	Trends in Bioinformatics	8	4
57	Diploma Workshop II	8	8
58	Diploma Seminar II	8	5
59	Team Project II (specialty-oriented)	8	5

60	Monograph Course II (specialty-oriented)	8	3

Specialty: Virtual Reality Methods in Bioinformatics

No.	Course	Semester	ECTS
1	English Classes I	1	2
2	OSH and Ergonomics	1	2
3	Elective Course I (Basics of Entrepreneurship, Philosophy)	1	3
4	Elective Course II (Business plan, Sociology)	1	3
5	Basics of Mathematics	1	3
6	Introduction to Computer Graphics	1	2
7	Information Technologies	1	2
8	Inorganic Chemistry	1	5
9	Basics of Logic and Set Theory	1	4
10	Basics of Biology	1	4
11	English Classes II	2	2
12	Physics	2	4

13	C++ I	2	3
14	Linear Algebra with Analytic Geometry	2	4
15	Mathematical Analysis I	2	4
16	Organic Chemistry	2	5
17	Cell Biology	2	2
18	Apprenticeships	2	6
19	English Classes III	3	2
20	Elective Course III (Business Financing, Economics)	3	3
21	C++ II	3	2
22	Algorithms and Data Structures	3	4
23	Mathematical Analysis II	3	3
24	Biochemistry	3	5
25	Quantum Physics	3	3
26	Genetics	3	3
27	Technical English I	4	2
28	Numerical Methods	4	2
29	Elective Course IV (Java, Software Engineering)	4	2
30	Methods of Artificial Intelligence	4	4

31	Molecular Biology	4	3
32	Molecular Modeling	4	4
33	Quantum Chemistry	4	5
34	Apprenticeships	4	6
35	Databases	5	4
36	Fundamentals of Statistical and Probabilistic Methods	5	2
37	Technical English II	5	2
38	Elective Course V (Cisco Network Services, Computer Decision Support Systems)	5	3
39	Neural Networks	5	4
40	Drug Design	5	5
41	Image Data Processing and Compression	5	3
42	Computer Graphics	5	2
43	Elective Course VI (Biostatistics, Medical Databases)	6	4
44	Molecular Modeling of Proteins	6	3
45	Calculation Methods of Quantum Chemistry	6	2
46	Apprenticeships	6	4
47	Virtual Reality Systems Programming	6	3
48	Project (specialty-oriented)	6	3

49	Virtual Instrumentalization	6	4
50	Genomics and Transcriptomics	7	3
51	Diploma Workshop I	7	5
52	Diploma Seminar I	7	5
53	Advanced Methods of Virtual Reality	7	5
54	Project (specialty-oriented)	7	3
55	Monograph Course I (specialty-oriented)	7	3
56	Trends in Bioinformatics	8	4
57	Diploma Workshop II	8	8
58	Diploma Seminar II	8	5
59	Team Project II (specialty-oriented)	8	5
60	Monograph Course II (specialty-oriented)	8	3