Załącznik nr 1b do Uchwały nr 713 Senatu UZ z dnia 29.03.2023 r.

PLAN OF REGULAR STUDIES Enrollment **2023/2024**

Subject area of studies: **PHYSICS** duration: **6 semesters**

Type of studies: **REGULAR DAILY FIRST DEGREE**

University of Zielona Góra

FACULTY OF PHYSICS AND ASTRONOMY

No.		SUBJECT	Number of teaching hours	ECTS	Form of receiving a credit	Semester 1						Semester 2						Semester 3						Semester 4						Semester 5						Semester 6					
						Form of instruction				Form of receiving a credit	ECTS	Form of instruction				Form of receiving a credit	ECTS	Form of instruction				Form of receiving a credit	ECTS	Form of instruction				Form of receiving a credit	ECTS	Form of instruction				Form of receiving a credit	ECTS	Form of instruction				Form of receiving a credit	ECTS
						L	T	D	L/S			L	T	D	L/S			L	T	D	L/S			L	T	D	L/S			L	T	D	L/S			L	T	D	L/S		
1	General subjects module (basic and directional)	**A. GENERAL SUBJECTS**	0	0																																					
2		English as aforeign language	120	8	c/mc/mc/ mE										**30**	**c/m**	**2**				**30**	**c/m**	**2**				**30**	**c/m**	**2**				**30**	**E**	**2**							
3		Computer laboratory I - information technologies	45	3	c/m										**45**	**c/m**	**3**																									
4		Physical education	60	0	cc		**30**			**c**	**0**		**30**			**c**	**0**																									
5		Selective subject in the field of humanities*	30	3	c/m							**30**				**c/m**	**3**																									
6		Selective social science subject*	15	2	c/m																													**15**				**c/m**	**2**				
7		**B. BASIC SUBJECTS**	0	0																																					
8		Introduction to higher physics and mathematics	30	2	c		**30**			**c**	**2**																															
9		Mathematical analysis I	120	8	E c/m	**60**	**60**			**E c/m**	**8**																															
10		Mathematical analysis II	75	5	E c/m							**30**	**45**			**E c/m**	**5**																									
11		Algebraic and geometrical methods in physics	75	6	E c/m	**30**	**45**			**E c/m**	**6**																															
12		Fundamentals of physics I – Mechanics	90	7	E c/m	**45**	**45**			**E c/m**	**7**																															
13		Fundamentals of physics II – Thermodynamics	60	5	E c/m							**30**	**30**			**E c/m**	**5**																									
14		Fundamentals of physics III – Electricity and magnetism	75	7	E c/m													**30**	**45**			**E c/m**	**7**																			
15		Fundamentals of physics IV – Optics, modern physics	75	6	E c/m																			**30**	**45**			**E c/m**	**6**													
16		Astronomy	30	2	c/m							**30**				**c/m**	**2**																									
17		Fundamentals of programming	60	5	c/m				**60**	**c/m**	**5**																															
18		**C. FIELD SUBJECTS**	0	0																																					
19		Metrology	30	2	c/m c/m	**15**	**15**			**c/m c/m**	**2**																															
20		Physics laboratory I - Mechanics, thermodynamics	45	4	c/m										**45**	**c/m**	**4**																									
21		Physics laboratory I - Electricity and magnetism	45	4	c/m																**45**	**c/m**	**4**																			
22		Physics laboratory I - Optics, modern physics	45	4	c/m																						**45**	**c/m**	**4**												
23		Computer data acquisition and processing	30	2	c/m										**30**	**c/m**	**2**																									
24		Classical and relativistic mechanics	60	6	E c/m																			**30**	**30**			**E c/m**	**6**													
25		Quantum mechanics foundations	60	6	E c/m																													**30**	**30**			**E c/m**	**6**				
26		Electrodynamics	60	6	E c/m																																			**30**	**30**		**E c/m**	**6**
27		Constitution of matter	60	6	E c/m																													**30**	**30**			**E c/m**	**6**				
28		Mathematical methods in physics I	60	6	E c/m													**30**	**30**			**E c/m**	**6**																			
29		Fundamentals of geophysics	45	3	c/m c/m																													**30**			**15**	**c/m c/m**	**3**				
30		**ELECTIVE SUBJECTS**	0	0																																					
31		Undergraduate seminar***	30	5	c/m																																				**30**	**c/m**	**5**
32		Monographic lecture***	30	4	E																																			**30**		**E**	**4**
33		Professional practice after the 4th semester, 3 weeks***	0	5	c																																					
34		BACHELOR THESIS***	0	8																																						**8**
35		LICENTIATE EXAMINATION	0	0	E																																					**E**
1	COMPUTER PHYSICS	Numerical methods	60	4	E c/m							**30**			**30**	**E c/m**	**4**																									
2		Object oriented programming	60	6	E c/m													**15**			**45**	**E c/m**	**6**																			
3		Data structures and algorithms	60	5	c/m c/m													**15**			**45**	**c/m c/m**	**5**																			
4		Computer measuring systems	45	3	c/m																						**45**	**c/m**	**3**												
5		Data analysis method	45	4	E c/m																			**15**			**30**	**E c/m**	**4**												
6		Modeling phenomena in nature	60	5	E c/m																			**30**			**30**	**E c/m**	**5**												
7		Signal analysis	60	6	E c/m																													**30**			**30**	**E c/m**	**6**				
8		Introduction to computer simulations	75	7	c/m c/m																																			**30**			**45**	**c/m c/m**	**7**

No.		SUBJECT	Number of teaching hours	ECTS	Form of receiving a credit	Semester 1 Form of instruction L	T	D	L/S	Form of receiving a credit	ECTS	Semester 2 Form of instruction L	T	D	L/S	Form of receiving a credit	ECTS	Semester 3 Form of instruction L	T	D	L/S	Form of receiving a credit	ECTS	Semester 4 Form of instruction L	T	D	L/S	Form of receiving a credit	ECTS	Semester 5 Form of instruction L	T	D	L/S	Form of receiving a credit	ECTS	Semester 6 Form of instruction L	T	D	L/S	Form of receiving a credit	ECTS
1	COMPUTER ASTROPHYSICS	Astronomical instruments	60	4	E c/m							**30**	**30**			**E c/m**	**4**																								
2		Introduction to analysis of astrophysical time series	30	3	c/m c/m																									**15**	**15**			**c/m c/m**	**3**						
3		The physics of stars and the scattered matter	60	6	E c/m																			**30**	**30**			**E c/m**	**6**												
4		Scientific calculations and numerical methods	45	3	c/m																										**45**			**c/m**	**3**						
5		Observational methods and data analysis in astrophysics	60	6	c/m c/m																			**30**	**30**			**c/m c/m**	**6**												
6		The basics of spherical astronomy and astrometry	60	6	E c/m													**30**	**30**			**E c/m**	**6**																		
7		Introduction to celestial mechanics and solar system	60	5	E c/m													**30**	**30**			**E c/m**	**5**																		
8		Systems of stars and structure of the Universe	60	5	E c/m																															**30**	**30**			**E c/m**	**5**
9		Introduction to the compact objects astrophysics	30	2	c/m																															**30**				**c/m**	**2**
1	GENERAL PHYSICS	General chemistry	45	4	E c/m							**30**			**15**	**E c/m**	**4**																								
2		Differential equations in physics	60	5	E c/m													**30**	**30**			**E c/m**	**5**																		
3		Algebraic and geometrical methods in physics II	45	3	E c/m													**15**	**30**			**E c/m**	**3**																		
4		Vibrations and waves	30	3	c/m													**30**				**c/m**	**3**																		
5		Introduction to electronics	45	4	E c/m																			**30**	**15**			**E c/m**	**4**												
6		Elements of modern physics	30	3	c/m																			**30**				**c/m**	**3**												
7		Physics of nature	60	5	E c/m																			**30**	**30**			**E c/m**	**5**												
8		Physics laboratory	60	6	c/m																												**60**	**c/m**	**6**						
9		History of physics	30	2	c/m																															**30**				**c/m**	**2**
10		Probability and statistics	45	5	E c/m																															**15**	**30**			**E c/m**	**5**
1	MEDICAL PHYSICS	Fundamentals of medical statistics	60	4	E c/m							**30**			**30**	**E c/m**	**4**																								
2		Introduction to biology and medical biology`	30	3	E													**30**				**E c/m**	**3**																		
3		Fundamentals of Emergency Medical Services.	30	4	c/m																**30**	**c/m**	**3**																		
4		Biophysics with elements of biochemistry	60	4	c/m c/m													**30**	**30**			**c/m c/m**	**5**																		
5		Biophysical and Biochemical Laboratory.	30	3	c/m																						**30**	**c/m**	**2**												
6		Digital Signal Processing	60	5	E c/m																			**30**			**30**	**E c/m**	**5**												
7		Nuclear physics in nuclear medicine	60	4	E c/m																			**30**	**30**			**E c/m**	**5**												
8		Medical Equipment, Imaging, and Diagnostics	60	6	E c/m																									**30**			**30**	**E c/m**	**6**						
9		Practical Methods of Medical Imaging - Cardiological Therapy.	30	3	E c/m																																		**30**	**c/m**	**3**
10		Physicochemical basis of biological life	30	3	E																															**30**				**E**	**3**
11		Radiation Protection	15	1	c/m																																		**15**	**c/m**	**1**

			Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Common subjects	1560	135	435	30 375	26 210	19 210	18 210	24 120	23
Speciality 1: COMPUTER PHYSICS	465	40	0	0 60	4 120	11 150	12 60	6 75	7
Speciality 2: COMPUTER ASTROPHYSICS	465	40	0	0 60	4 120	11 120	12 75	6 90	7
Speciality 3: GENERAL PHYSICS	450	40	0	0 45	4 135	11 135	12 60	6 75	7
Speciality 3: MEDICAL PHYSICS	465	40	0	0 60	4 120	11 150	12 60	6 75	7
Practice	60	5							
SumCOMPUTER PHYSICS	2085	**180**	**435**	**30 435**	**30 330**	**30 360**	**30 270**	**30 195**	**30**
SumCOMPUTER ASTROPHYSICS	2085	**180**	**435**	**30 435**	**30 330**	**30 330**	**30 285**	**30 210**	**30**
SumGENERAL PHYSICS	2070	**180**	**435**	**30 420**	**30 330**	**30 345**	**30 270**	**30 210**	**30**
SumMEDICAL PHYSICS	2085	**180**	**435**	**30 435**	**30 330**	**30 360**	**30 270**	**30 195**	**30**

Sum without Practice

COMPUTER PHYSIC	2025	**175**
COMPUTER ASTROPHYSIC	2025	**175**
GENERAL PHYSICS	2010	**175**
MEDICAL PHYSIC	2025	**175**

Plan studiów został zatwierdzony na Wydziałowej Radzie ds. Kształcenia dnia **07 marca 2023** roku

Blue color: all selective courses, * - common selective courses, *** - common selective courses within speciality
Lectures:**Astronomy,Fundamentals of geophysics** -credit and mark
English as a foreign language - Semesters 2-4- credit and mark.
Introduction to higher physics and mathematics, Physical education- credit without grade.

Selective subject in the field of humanities*: Language culture / Humanistic subject from another faculty (30 hours, 3 ECTS)- credit and mark.
Selective social science subject*: Intellectual property protection, occupational safety, ergonomics / Social subject from another faculty (15 hours, 2 ECTS)- credit and mark.
Lecture**Introduction to computer simulations**- credit and mark
Lecture**Observational methods and data analysis in astrophysics**- credit and marks
Lecture**Vibrations and waves**- credit and mark
Professional practice after the 4th semester, 3 weeks,credit in semester V
Bachelor thesis- credit without grade.