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

Subject area of studies: **PHYSICS** duration: **4 semesters**

Type of studies: **REGULAR DAILY SECOND 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					
						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		
1	General subjects module (basic and directional)	A. GENERAL SUBJECTS	0	0																									
2		English language	30	2	E				**30**	**E**	**2**																		
3		Selective subject in the field of humanities*	15	2	c/m							**15**				**c/m**	**2**												
4		Selective social science subject*	30	3	c/m													**30**				**c/m**	**3**						
5		B BASIC SUBJECTS	0	0																									
6		Physics laboratory II	120	12	c/mc/m				**60**	**c/m**	**6**				**60**	**c/m**	**6**												
7		C. FIELD SUBJECTS	0	0																									
8		Elements of theoretical physics I	60	5	E c/m	**30**	**30**			**E c/m**	**5**																		
9		Physics of condensed matter	60	7	E c/m													**30**	**30**			**E c/m**	**7**						
10		Quantum physics	60	6	E c/m	**30**	**30**			**E c/m**	**6**																		
11		Nuclear and high energy physics	60	6	E c/m													**30**	**30**			**E c/m**	**6**						
12		Applied statistical physics	60	5	c/m c/m	**30**	**30**			**c/m c/m**	**5**																		
13		Introduction to atomic and molecular physics	60	7	E c/m							**30**	**30**			**E c/m**	**7**												
14		Groundbreaking experiments in physics	30	2	c/m													**30**				**c/m**	**2**						
15		ELECTIVE SUBJECTS***	0	0																									
16		Graduate seminar I	30	4	c/m																**30**	**c/m**	**4**						
17		Graduate seminar II	30	4	c/m																						**30**	**c/m**	**4**
18		General seminar	30	4	c/m																						**30**	**c/m**	**4**
19		Monographic lecture I	**30**	4	E													**30**				**E**	**4**						
20		Monographic lecture II	30	4	E																			**30**				**E**	**4**
21		MASTER'S THESIS	0	12	c/m																							**c/m**	**12**
22		MAGISTER EXAMINATION	0	0	E																							**E**	
1	COMPUTER PHYSICS	Scientific computing with C++	60	6	E c/m	**15**			**45**	**E c/m**	**6**																		
2		Modeling and simulations of physical systems	60	6	E c/m							**30**			**30**	**E c/m**	**6**												
3		Physics of computer games	30	2	c/m										**30**	**c/m**	**2**												
4		Dynamics of nonlinear systems	30	3	E							**30**				**E**	**3**												
5		Internet applications programming	45	4	E c/m							**15**			**30**	**E c/m**	**4**												
6		Introduction to machine learning	60	4	E c/m													**15**			**45**	**E c/m**	**4**						
7		Quantum systems simulations	60	6	E c/m																			**30**			**30**	**E c/m**	**6**
1	THEORETICAL PHYSICS	Advanced mathematical methods in physics	60	6	E c/m	**30**			**30**	**E c/m**	**6**																		
2		Packages for symbolic computations	30	3	c/m										**30**	**c/m**	**3**												
3		Computer simulations	45	6	E c/m							**15**			**30**	**E c/m**	**6**												
4		Field theory	60	6	E c/m							**30**	**30**			**E c/m**	**6**												
5		Quantum physics II	60	4	E c/m													**30**	**30**			**E c/m**	**4**						
6		Elements of theoretical physics II	60	4	c/m c/m																			**30**	**30**			**c/m c/m**	**4**
7		Elementary particle physics	30	2	c/m																			**30**				**c/m**	**2**

No.		SUBJECT	Number of teaching hours	ECTS	Form of receiving a credit	Semester 1						Semester 2						Semester 3						Semester 4					
						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		
1	COMPUTER ASTROPHYSICS	Astrophysics I	45	6	E c/m	**15**	**30**			**E c/m**	**6**																		
2		Astrophysics II	60	6	E c/m							**30**	**30**			**E c/m**	**6**												
3		Extragalactic astronomy and cosmology	30	4	c/m c/m							**15**	**15**			**c/m c/m**	**4**												
4		Astrophysics of compact objects	45	6	E c/m																			**15**	**30**			**E c/m**	**6**
5		Modern radioastronomy	30	2	c/m													**30**				**c/m**	**2**						
6		High-energy astrophysics	30	2	E													**30**				**E**	**2**						
7		Radiative processes in astrophysics	75	5	E c/m							**30**	**45**			**E c/m**	**5**												
1	MEDICAL PHYSICS	Dosimetry and quality control in medical physics	45	6	E c/m	**15**			**30**	**E c/m**	**6**																		
2		Packages for statistical analysis	30	3	c/m										**30**	**c/m**	**3**												
3		Medical image analysis algorithms	60	7	E c/m							**30**			**30**	**E c/m**	**7**												
4		Mathematical methods in biophysics and medical physics	45	5	c/m c/m							**15**	**30**			**c/m c/m**	**5**												
5		Elements of bioinformatics	45	4	E c/m													**15**			**30**	**E c/m**	**4**						
6		Physics of fluids in biology and medicine	60	4	E c/m																			**30**			**30**	**E c/m**	**4**
7		Elements of microbiology	30	2	c/m																			**30**				**c/m**	**2**

Common subjects	735	89	270		24	135		15	240		26	90		24
Speciality 1: COMPUTER PHYSICS	345	31	60		6	165		15	60		4	60		6
Speciality 2: THEORETICAL PHYSICS	345	31	60		6	135		15	60		4	90		6
Speciality 2: COMPUTER ASTROPHYSICS	315	31	45		6	165		15	60		4	45		6
Speciality 4: MEDICAL PHYSICS	315	31	45		6	135		15	45		4	90		6
Practice														
SumCOMPUTER PHYSICS	**1080**	**120**	**330**		**30**	**300**		**30**	**300**		**30**	**150**		**30**
SumTHEORETICAL PHYSICS	**1080**	**120**	**330**		**30**	**270**		**30**	**300**		**30**	**180**		**30**
SumCOMPUTER ASTROPHYSICS	**1050**	**120**	**315**		**30**	**300**		**30**	**300**		**30**	**135**		**30**
SumMEDICAL PHYSICS	**1050**	**120**	**315**		**30**	**270**		**30**	**285**		**30**	**180**		**30**

Sum without Practice

COMPUTER PHYSIC	**1050**	**120**
THEORETICAL PHYSICS	**1080**	**120**
COMPUTER ASTROPHYSICS	**1050**	**120**
MEDICAL PHYSICS	**1050**	**120**

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

English, Graduate seminar I, II, General seminar- credit and mark
Selective subject in the field of humanities*: Philosophy of nature / Humanistic subject
Selective social science subject*: Elements of economics / Social subject
Lectures:**Elementary particle physics**- credit and mark
Lectures:**Extragalactic astronomy and cosmology**- credit and mark
Lectures:**Mathematical methods in biophysics and medical physics**- credit and mark