

**PLAN OF REGULAR STUDIES, FIRST DEGREE**  
**faculty: PHYSICS**

REGULAR DAILY STUDIES – enrolment 2015/2016

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COMMON SUBJECTS

No.	Subject	Summary figures	Curriculum in respective semesters (hours per week)													
			Including		I		II		III		IV		V		VI	
			H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.
<b>A. GENERAL SUBJECTS</b>																
1	English as a foreign language	Lab	120	8			2	2	2	2	2	2	2	2		
2	Computer laboratory I - information technologies	Lab	45	3	3	3										
3	Physical education	T	30	1			2	1								
4	Selective subject*		30	2											2	
5	Selective subject in the field of humanities*		30	3			2	3								
6	Selective social science subject*		15	2									1	2		
<b>B. BASIC SUBJECTS</b>																
7	Introduction to higher physics and mathematics	T	30	0	2	0										
8	Mathematical analysis I	T	60	9	4	5										
9	Mathematical analysis I	L	60	4	4											
10	Mathematical analysis II	T	45	5			3	3								
11	Mathematical analysis II	L	30	5			2	2								
12	Algebraic and geometrical methods in physics I	T	45	6	3	3										
13	Algebraic and geometrical methods in physics I	L	30	6	2	3										
14	Fundamentals of physics I – Mechanics	T	45	8	3	4										
15	Fundamentals of physics I – Mechanics	L	45	8	3	4										
16	Fundamentals of physics II – Thermodynamics	T	30	4			2	2								
17	Fundamentals of physics II – Thermodynamics	L	30	4			2	2								
18	Fundamentals of physics III – Electricity and magnetism	T	45	7					3	4						
19	Fundamentals of physics III – Electricity and magnetism	L	30	7					2	3						
20	Fundamentals of physics IV – Optics, modern physics	T	45	6							3	4				
21	Fundamentals of physics IV – Optics, modern physics	L	30	6							2	2				
22	Astronomy	L	30	2	2	2										
23	Fundamentals of programming	Lab	45	5			3	3								
24	Fundamentals of programming	L	30	5			2	2								
<b>C. FIELD SUBJECTS</b>																
25	Metrology	T	15	2	1	2										
26	Physics laboratory I - Mechanics, thermodynamics	Lab	45	4			3	4								
27	Physics laboratory I - Electricity and magnetism	Lab	45	4					3	4						
28	Physics laboratory I - Optics, modern physics	Lab	45	4							3	4				
29	Computer laboratory II	Lab	30	2			2	2								
30	Classical and relativistic mechanics	T	30	6							2	3				
31	Classical and relativistic mechanics	L	30	6							2	3				
32	Quantum mechanics foundations	T	30	6									2	3		
33	Quantum mechanics foundations	L	30	6									2	3		
34	Electrodynamics	T	30	6											2	
35	Electrodynamics	L	30	6											2	
36	Physics of phase transitions	T	30	6									2	3		
37	Physics of phase transitions	L	30	6									2	3		
38	Mathematical methods in physics	T	30	6					2	3						
39	Mathematical methods in physics	L	30	6					2	3						
<b>Sum:</b>			<b>1455</b>	<b>117</b>	<b>27</b>	<b>30</b>	<b>25</b>	<b>26</b>	<b>14</b>	<b>19</b>	<b>14</b>	<b>18</b>	<b>11</b>	<b>16</b>	<b>6</b>	<b>8</b>

Legend: L - lecture, T- tutorial, Lab - laboratory, Pr - practice, S – seminar

The lecture courses are closed with an examination.

Tutorials, laboratories and seminars — credit and mark

\* - Elective course, \*\* - elective specialty,

\*\*\* - elective courses within specialty

Examination is made

by a bold and underlined figure

H – hours per week

Lectures: Astronomy - credit and mark, English as a foreign language — credit and mark.

Introduction to higher physics and mathematics, Physical education - credit without grade.

Selective subject\*: Natural sciences methodology / University-wide elective courses or from another field of study (30 hours, 2 ECTS) 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 / Social subject from another faculty (15 hours, 2 ECTS) - credit and mark.

Plan studiów zatwierdzono na Radzie Wydziału w dniu 28 kwietnia 2015 r.

Zmiany wprowadzono:

**PLAN REGULAR STUDIES, UNDERGRADUATE PROGRAMME**

faculty: PHYSICS, speciality: ENVIRONMENTAL PHYSICS\*\*

REGULAR DAILY STUDIES – enrolment 2015/2016

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No.	Subject		Summary figures		Curriculum in respective semesters (hours per week)											
			Including		I		II		III		IV		V		VI	
			H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.
	continued from page 1		<b>1455</b>	<b>117</b>	<b>27</b>	<b>30</b>	<b>25</b>	<b>26</b>	<b>14</b>	<b>19</b>	<b>14</b>	<b>18</b>	<b>11</b>	<b>16</b>	<b>6</b>	<b>8</b>
	<b>D. SPECIALIZATION SUBJECTS**</b>															
1	Thermodynamics and elements of heat engineering	T	<b>30</b>						2	3						
2	Thermodynamics and elements of heat engineering	L	<b>30</b>	<b>5</b>					<b>2</b>	<b>2</b>						
3	Elements of acoustics, noise protection	Lab	<b>30</b>						2	3						
4	Elements of acoustics, noise protection	L	<b>30</b>	<b>6</b>					<b>2</b>	<b>3</b>						
5	Measurement data analysis	Lab	<b>30</b>	<b>3</b>							2	3				
6	Foundations of astrometeorology	T	<b>30</b>			2	2									
7	Foundations of astrometeorology	L	<b>15</b>	<b>4</b>		<b>1</b>	<b>2</b>									
8	Physics and nuclear energy	T	<b>30</b>							2	3					
9	Physics and nuclear energy	L	<b>30</b>	<b>5</b>						<b>2</b>	<b>2</b>					
10	Electromagnetic radiation and health	T	<b>30</b>							2	2					
11	Electromagnetic radiation and health	L	<b>15</b>	<b>3</b>							1	1				
12	Spectroscopy	Lab	<b>15</b>	<b>2</b>											1	2
13	Environmental physics I – Natural environment pollution	T	<b>30</b>										2	2		
14	Environmental physics I – Natural environment pollution	L	<b>30</b>	<b>5</b>									<b>2</b>	<b>3</b>		
15	Environmental physics II – Energy resources management	T	<b>15</b>												1	1
16	Environmental physics II – Energy resources management	L	<b>30</b>	<b>3</b>											<b>2</b>	<b>2</b>
17	Environmental physics laboratory	Lab	<b>30</b>	<b>4</b>									2	4		
18		Lab	<b>30</b>	<b>2</b>											2	2
19	Environmental protection law	L	<b>15</b>	<b>1</b>							1	1				
	<b>ELECTIVE SUBJECTS***</b>															
20	Undergraduate seminar***	S	<b>30</b>	<b>5</b>											2	5
21	Monographic lecture***	L	<b>30</b>	<b>4</b>											<b>2</b>	<b>4</b>
22	Professional practice after the 4th semester, 3 weeks***	Pr		<b>5</b>										5		
23	<b>BACHELOR THESIS***</b>			<b>6</b>												6
24	<b>LICENTIATE EXAMINATION</b>															<b>E</b>
	<b>Sum: D</b>		<b>555</b>	<b>63</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>8</b>	<b>11</b>	<b>10</b>	<b>12</b>	<b>6</b>	<b>14</b>	<b>10</b>	<b>22</b>
	<b>Sum: A + B + C + D</b>		<b>2010</b>	<b>180</b>	<b>27</b>	<b>30</b>	<b>28</b>	<b>30</b>	<b>22</b>	<b>30</b>	<b>24</b>	<b>30</b>	<b>17</b>	<b>30</b>	<b>16</b>	<b>30</b>
	Number of examinations:				<b>3E</b>	<b>4E</b>		<b>4E</b>		<b>3E</b>		<b>3E</b>	<b>3E</b>		<b>3E+</b>	<b>1E</b>

Legend: L - lecture, T - Tutorials, Lab - laboratory, Pr -practice, S – seminar  
 The lecture courses are closed with an **examination**  
 Tutorials, laboratories and seminars — **credit and mark**

**Lecture:**

Electromagnetic radiation and health, Environmental protection law – **credit and mark**  
 Professional practice after the 4th semester, 3 weeks – **credit in semester V**  
 Bachelor thesis - **credit without grade.**

**Examination is made**  
**by a bold and underlined figure**  
 H – hours per week  
 pt. - ECTS

**\* - Elective course, \*\* - elective speciality,**  
**\*\*\* - elective courses within speciality**

**PLAN OF REGULAR STUDIES, UNDERGRADUAT PROGRAMME**

faculty: PHYSICS, speciality: COMPUTER PHYSICS\*\*

REGULAR DAILY STUDIES – enrolment 2015/2016

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No.	Subject	Summary figures		Curriculum in respective semesters (hours per week)											
		Including		I		II		III		IV		V		VI	
		H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.
		<b>1455</b>	<b>117</b>	<b>27</b>	<b>30</b>	<b>25</b>	<b>26</b>	<b>14</b>	<b>19</b>	<b>14</b>	<b>18</b>	<b>11</b>	<b>16</b>	<b>6</b>	<b>8</b>
	<b>D. SPECIALIZATION SUBJECTS**</b>														
1	Computer graphics Lab	<b>30</b>				2	2								
2	Computer graphics L	<b>30</b>	<b>4</b>			<u>2</u>	2								
3	Numerical methods Lab	<b>30</b>						2	3						
4	Numerical methods L	<b>30</b>	<b>5</b>					<u>2</u>	2						
5	Object oriented programming Lab	<b>30</b>						2	4						
6	Object oriented programming L	<b>30</b>	<b>6</b>					<u>2</u>	2						
7	Databases Lab	<b>30</b>	<b>3</b>							2	3				
8	Measurement data analysis Lab	<b>30</b>								2	3				
9	Measurement data analysis L	<b>30</b>	<b>5</b>							<u>2</u>	2				
10	Data structures and algorithms Lab	<b>30</b>								2	2				
11	Data structures and algorithms L	<b>30</b>	<b>4</b>							2	2				
12	Python language in numerical calculations Lab	<b>30</b>										2	3		
13	Python language in numerical calculations L	<b>30</b>	<b>6</b>									<u>2</u>	3		
14	Advanced programming methods Lab	<b>30</b>	<b>3</b>									2	3		
15	Introduction to computer simulations Lab	<b>45</b>												3	4
16	Introduction to computer simulations L	<b>30</b>	<b>7</b>											2	3
	<b>ELECTIVE SUBJECTS***</b>														
17	Undergraduate seminar*** S	<b>30</b>	<b>5</b>												2 5
18	Monographic lecture*** L	<b>30</b>	<b>4</b>											<u>2</u>	4
19	Professional practice after the 4th semester, 3 weeks*** Pr		<b>5</b>									5			
20	<b>BACHELOR THESIS***</b>		<b>6</b>												6
21	<b>LICENTIATE EXAMINATION</b>														<b>E</b>
	<b>Sum: D</b>	<b>555</b>	<b>63</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>8</b>	<b>11</b>	<b>10</b>	<b>12</b>	<b>6</b>	<b>14</b>	<b>9</b>	<b>22</b>
	<b>Sum: A + B + C + D</b>	<b>2010</b>	<b>180</b>	<b>27</b>	<b>30</b>	<b>29</b>	<b>30</b>	<b>22</b>	<b>30</b>	<b>24</b>	<b>30</b>	<b>17</b>	<b>30</b>	<b>15</b>	<b>30</b>
	Number of examinations:			<b>3E</b>	<b>4E</b>	<b>4E</b>	<b>4E</b>	<b>3E</b>	<b>3E</b>	<b>3E</b>	<b>3E</b>	<b>3E</b>	<b>2E+</b>	<b>1E</b>	

Legend: L - lecture, T - Tutorials, Lab - laboratory, Pr -practice, S – seminar  
 The lecture courses are closed with an **examination**  
 Tutorials, laboratories and seminars — **credit and mark**

**Lectures:**

Data structures and algorithms, Introduction to computer simulations — **credit and mark**  
 Professional practice after the 4th semester, 3 weeks, **credit in semester V**  
 Bachelor thesis - **credit without grade.**

**Examination is made by a bold and underlined figure**

H – hours per week

pt. - ECTS

**\* - Elective course, \*\* - elective specialty, \*\*\* - elective courses within specialty**

PLAN OF REGULAR STUDIES, UNDERGRADUAT PROGRAMME

faculty: PHYSICS, speciality: COMPUTER ASTROPHYSICS\*\*

REGULAR DAILY STUDIES – enrolment 2015/2016

page. 4

No.	Subject	figures		Curriculum in respective semesters (hours per week)											
		Including		I		II		III		IV		V		VI	
		H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.	H	pt.
		1455	117	53	30	25	26	14	19	14	18	11	16	6	8
	<b>D. SPECIALIZATION SUBJECTS**</b>														
1	Astronomical instruments Lab	30	4			2	2								
2	Astronomical instruments L	30				<u>2</u>	2								
3	Introduction to analysis of astrophysical time series Lab	15	3									1	2		
4	Introduction to analysis of astrophysical time series L	15										<u>1</u>	1		
5	The physics of stars and the scattered matter Lab	30	6							2	4				
6	The physics of stars and the scattered matter L	30								<u>2</u>	2				
7	Scientific calculations and numerical methods Lab	45	3									3	3		
8	Observational methods and data analysis in astrophysics Lab	30	6							2	4				
9	Observational methods and data analysis in astrophysics L	30								2	2				
10	The basics of spherical astronomy and astrometry Lab	30	6					2	4						
11	The basics of spherical astronomy and astrometry L	30						<u>2</u>	2						
12	Introduction to celestial mechanics and solar system Lab	30	5					2	3						
13	Introduction to celestial mechanics and solar system L	30						<u>2</u>	2						
14	Systems of stars, the structure of the Universe and cosmology Lab	30	5											2	3
15	Systems of stars, the structure of the Universe and cosmology L	30												<u>2</u>	2
16	Plasma astrophysics Lab	15	3									1	2		
17	Plasma astrophysics L	15										<u>1</u>	1		
18	Introduction to the compact objects astrophysics Lab	30	2											<u>2</u>	2
	<b>ELECTIVE SUBJECTS***</b>														
19	Undergraduate seminar*** S	30	5											2	5
20	Monographic lecture*** L	30	4											<u>2</u>	4
21	Professional practice after the 4th semester, 3 weeks*** Pr		5										5		
22	<b>BACHELOR THESIS***</b>		6												6
23	<b>LICENTIATE EXAMINATION</b>														E
	<b>Sum: D</b>	555	63	0	0	4	4	8	11	8	12	7	14	10	22
	<b>Sum: A + B + C + D</b>	2010	180	27	30	29	30	22	30	22	30	18	30	16	30
	Number of examinations:			3E	4E		4E	3E		4E	4E+	1E			

Legend: L - lecture, T - Tutorials, Lab - laboratory, Pr -practice, S – seminar

The lecture courses are closed with an examination

Tutorials, laboratories and seminars — credit and mark

**Lectures:**

Observational Methods and Data Analysis in Astronomy - credit and mark

Professional practice after the 4th semester, 3 weeks, credit in semester V

Bachelor thesis - credit without grade.

Examination is made by a bold and underlined figure

H – hours per week

pt. - ECTS

\* - Elective course, \*\* - elective specialty, \*\*\* - elective courses within specialty