

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

REGULAR DAILY STUDIES – enrolment 2016/2017

page 1

**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	<b>120</b>	<b>8</b>			2	2	2	2	2	2	2	2		
2	Computer laboratory I - information technologies	Lab	<b>45</b>	<b>3</b>	3	3										
3	Physical education	T	<b>30</b>	<b>1</b>			2	1								
4	Selective subject*		<b>30</b>	<b>2</b>										2	2	
5	Selective subject in the field of humanities*		<b>30</b>	<b>3</b>			2	3								
6	Selective social science subject*		<b>15</b>	<b>2</b>									1	2		
<b>B. BASIC SUBJECTS</b>																
7	Introduction to higher physics and mathematics	T	<b>30</b>	<b>0</b>	2	0										
8	Mathematical analysis I	T	<b>60</b>	<b>9</b>	4	5										
9	Mathematical analysis I	L	<b>60</b>	<b>4</b>	4											
10	Mathematical analysis II	T	<b>45</b>	<b>5</b>			3	3								
11	Mathematical analysis II	L	<b>30</b>	<b>5</b>			2	2								
12	Algebraic and geometrical methods in physics I	T	<b>45</b>	<b>6</b>	3	3										
13	Algebraic and geometrical methods in physics I	L	<b>30</b>	<b>6</b>	2	3										
14	Fundamentals of physics I – Mechanics	T	<b>45</b>	<b>8</b>	3	4										
15	Fundamentals of physics I – Mechanics	L	<b>45</b>	<b>8</b>	3	4										
16	Fundamentals of physics II – Thermodynamics	T	<b>30</b>	<b>4</b>			2	2								
17	Fundamentals of physics II – Thermodynamics	L	<b>30</b>	<b>4</b>			2	2								
18	Fundamentals of physics III – Electricity and magnetism	T	<b>45</b>	<b>7</b>					3	4						
19	Fundamentals of physics III – Electricity and magnetism	L	<b>30</b>	<b>7</b>					2	3						
20	Fundamentals of physics IV – Optics, modern physics	T	<b>45</b>	<b>6</b>							3	4				
21	Fundamentals of physics IV – Optics, modern physics	L	<b>30</b>	<b>6</b>							2	2				
22	Astronomy	L	<b>30</b>	<b>2</b>	2	2										
23	Fundamentals of programming	Lab	<b>45</b>	<b>5</b>			3	3								
24	Fundamentals of programming	L	<b>30</b>	<b>5</b>			2	2								
<b>C. FIELD SUBJECTS</b>																
25	Metrology	T	<b>15</b>	<b>2</b>	1	2										
26	Physics laboratory I - Mechanics, thermodynamics	Lab	<b>45</b>	<b>4</b>			3	4								
27	Physics laboratory I - Electricity and magnetism	Lab	<b>45</b>	<b>4</b>					3	4						
28	Physics laboratory I - Optics, modern physics	Lab	<b>45</b>	<b>4</b>							3	4				
29	Computer laboratory II	Lab	<b>30</b>	<b>2</b>			2	2								
30	Classical and relativistic mechanics	T	<b>30</b>	<b>6</b>							2	3				
31	Classical and relativistic mechanics	L	<b>30</b>	<b>6</b>							2	3				
32	Quantum mechanics foundations	T	<b>30</b>	<b>6</b>									2	3		
33	Quantum mechanics foundations	L	<b>30</b>	<b>6</b>									2	3		
34	Electrodynamics	T	<b>30</b>	<b>6</b>										2	3	
35	Electrodynamics	L	<b>30</b>	<b>6</b>										2	3	
36	Physics of phase transitions	T	<b>30</b>	<b>6</b>									2	3		
37	Physics of phase transitions	L	<b>30</b>	<b>6</b>									2	3		
38	Mathematical methods in physics	T	<b>30</b>	<b>6</b>					2	3						
39	Mathematical methods in physics	L	<b>30</b>	<b>6</b>					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

**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**.

Examination is made  
by a bold and underlined figure

H – hours per week

Plan studiów zatwierdzono na Radzie Wydziału w dniu 26 kwietnia 2016 r.

Zmiany wprowadzono:

**PLAN REGULAR STUDIES, UNDERGRADUATE PROGRAMME**

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

REGULAR DAILY STUDIES – enrolment 2016/2017

page. 2

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		1455	117	27	30	25	26	14	19	14	18	11	16	6	8
	<b>D. SPECIALIZATION SUBJECTS**</b>															
1	Thermodynamics and elements of heat engineering	T	30						2	3						
2	Thermodynamics and elements of heat engineering	L	30	5				2	2							
3	Elements of acoustics, noise protection	Lab	30					2	3							
4	Elements of acoustics, noise protection	L	30	6				2	3							
5	Measurement data analysis	Lab	30	3						2	3					
6	Foundations of astrometeorology	T	30			2	2									
7	Foundations of astrometeorology	L	15	4		1	2									
8	Physics and nuclear energy	T	30							2	3					
9	Physics and nuclear energy	L	30	5						2	2					
10	Electromagnetic radiation and health	T	30							2	2					
11	Electromagnetic radiation and health	L	15	3						1	1					
12	Spectroscopy	Lab	15	2											1	2
13	Environmental physics I – Natural environment pollution	T	30										2	2		
14	Environmental physics I – Natural environment pollution	L	30	5									2	3		
15	Environmental physics II – Energy resources management	T	15												1	1
16	Environmental physics II – Energy resources management	L	30	3											2	2
17	Environmental physics laboratory	Lab	30	4									2	4		
18		Lab	30	2											2	2
19	Environmental protection law	L	15	1						1	1					
	<b>ELECTIVE SUBJECTS***</b>															
20	Undergraduate seminar***	S	30	5											2	5
21	Monographic lecture***	L	30	4											2	4
22	Professional practice after the 4th semester, 3 weeks***	Pr		5										5		
23	<b>BACHELOR THESIS***</b>			6												6
24	<b>LICENTIATE EXAMINATION</b>															E
	<b>Sum: D</b>		555	63	0	0	3	4	8	11	10	12	6	14	10	22
	<b>Sum: A + B + C + D</b>		2010	180	27	30	28	30	22	30	24	30	17	30	16	30
	Number of examinations:				3E	4E		4E		3E		3E		3E+	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**

**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 2016/2017

page. 3

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>		<b>2</b>	<b>2</b>									
3	Numerical methods	Lab	<b>30</b>					2	3							
4	Numerical methods	L	<b>30</b>	<b>5</b>				<b>2</b>	<b>2</b>							
5	Object oriented programming	Lab	<b>30</b>					2	4							
6	Object oriented programming	L	<b>30</b>	<b>6</b>				<b>2</b>	<b>2</b>							
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>						<b>2</b>	<b>2</b>					
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>								<b>2</b>	<b>3</b>			
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>										<b>2</b>	<b>4</b>	
19	Professional practice after the 4th semester, 3 weeks***	Pr		<b>5</b>								5				
20	<b>BACHELOR THESIS***</b>			<b>6</b>											<b>6</b>	
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>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 2016/2017

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.	
		<b>1455</b>	<b>117</b>	<b>53</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	Astronomical instruments	Lab	<b>30</b>			2	2									
2	Astronomical instruments	L	<b>30</b>	4		<u>2</u>	2									
3	Introduction to analysis of astrophysical time series	Lab	<b>15</b>	3								1	2			
4	Introduction to analysis of astrophysical time series	L	<b>15</b>									<u>1</u>	1			
5	The physics of stars and the scattered matter	Lab	<b>30</b>	6						2	4					
6	The physics of stars and the scattered matter	L	<b>30</b>							<u>2</u>	2					
7	Scientific calculations and numerical methods	Lab	<b>45</b>	3								3	3			
8	Observational methods and data analysis in astrophysics	Lab	<b>30</b>	6						2	4					
9	Observational methods and data analysis in astrophysics	L	<b>30</b>							2	2					
10	The basics of spherical astronomy and astrometry	Lab	<b>30</b>	6				2	4							
11	The basics of spherical astronomy and astrometry	L	<b>30</b>					<u>2</u>	2							
12	Introduction to celestial mechanics and solar system	Lab	<b>30</b>	5				2	3							
13	Introduction to celestial mechanics and solar system	L	<b>30</b>					<u>2</u>	2							
14	Systems of stars, the structure of the Universe and cosmology	Lab	<b>30</b>	5										2	3	
15	Systems of stars, the structure of the Universe and cosmology	L	<b>30</b>											<u>2</u>	2	
16	Plasma astrophysics	Lab	<b>15</b>	3								1	2			
17	Plasma astrophysics	L	<b>15</b>									<u>1</u>	1			
18	Introduction to the compact objects astrophysics	Lab	<b>30</b>	2										<u>2</u>	2	
<b>ELECTIVE SUBJECTS***</b>																
19	Undergraduate seminar***	S	<b>30</b>	5										2	5	
20	Monographic lecture***	L	<b>30</b>	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>														<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>8</b>	<b>12</b>	<b>7</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>29</b>	<b>30</b>	<b>22</b>	<b>30</b>	<b>22</b>	<b>30</b>	<b>18</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>4E</b>		<b>4E+</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:**

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**