



*European  
Polytechnical  
University*

ENDORSED: .....

Rector of EPU: Prof. Marin Marinov, PhD

**Educational Degree  
„BACHELOR“**

Form of Training: *Full-time*  
Term of Training: *4 Academic Years (8 Semesters)*

**Professional Field:**

**5.4 ENERGETICS**

Professional Qualification: **Bachelor-Engineer**

**CURRICULUM**

**PROGRAMME: GREEN ENERGETICS**

2020



## I. TIME SCHEDULE

Year	Auditoria Workload	Examinations	Practical Training	Industrial/Field Placement	Practice	Work on Diploma Thesis	Vacations	Total (Number of Weeks)
I	30	11	2	-	-	-	9	52
II	30	11	-	2	-	-	9	52
III	30	11	-	-	2	-	9	52
IV	15	6	-	-	-	15+7	9	52

## II. CURRICULUM

<p>ECTS code: (ACS/GC)TNo</p> <ul style="list-style-type: none"><li>• ACS – “Applied Computer Science”</li><li>• GC –General University Courses;</li><li>• T – type of degree: <b>B</b> - “Bachelor”, <b>M</b> - “Master”;</li><li>• No – serial number of the course;</li></ul> <p>Lectures (L), Seminar Exercises (SE), Lab Exercises (LE), Practical Training/Fieldwork (PT), Auditoria Workload (total) (AT), Self-Study (SS) per week</p> <p>Exam (E), Continuous Assessment (CA); Project Work (PW), Course Work (CW)/Course Tasks (CT)</p>
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**GC1:**European Values and Culture  
**GC2:** Basics of Economics  
**GC3:** Introduction to Informatics  
**GC4:** Technical English



### SEMESTER I

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
1	Introduction to specialty/GE	1	0	0	-	1	1	2				1	<b>GEB101</b>	<b>1</b>
2	Mathematics I	2	2	0	-	4	4	8	1				<b>GEB102</b>	<b>5</b>
3	Physics	2	0	2	-	4	4	8	1				<b>GEB103</b>	<b>5</b>
4	Chemistry	2	0	2	-	4	4	8	1				<b>GEB104</b>	<b>5</b>
5	Basics of Economics	2	1	0	-	3	3	6	1				<b>GC2</b>	<b>5</b>
6	European Values and Culture	2	2	0	-	4	4	8		1			<b>GC1</b>	<b>5</b>
7	Elective Module 1	2	1	1	-	4	4	8		1			<b>GEB105</b>	<b>5</b>
<b>Total</b>		<b>13</b>	<b>6</b>	<b>5</b>	<b>-</b>	<b>24</b>	<b>24</b>	<b>48</b>	<b>4</b>	<b>2</b>		<b>1</b>		<b>31</b>

### SEMESTER II

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
8	Informatics	2	2	0	-	4	4	8		1			<b>GC3</b>	<b>5</b>
9	Electrical Engineering	2	1	1	-	4	4	8	1				<b>GEB106</b>	<b>5</b>
10	Mathematics II	2	2	0	-	4	4	8	1				<b>GEB107</b>	<b>5</b>
11	Introduction to construction and CAD systems	2	0	2	-	4	4	8		1			<b>GEB108</b>	<b>5</b>
12	Mechanics	2	2	0	-	4	4	8	1				<b>GEB109</b>	<b>5</b>
13	Elective Module 2	2	1	1	-	4	4	8		1			<b>GEB110</b>	<b>5</b>
<b>Total</b>		<b>12</b>	<b>8</b>	<b>4</b>	<b>-</b>	<b>24</b>	<b>24</b>	<b>48</b>	<b>4</b>	<b>2</b>				<b>30</b>



### SEMESTER III

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
14	Thermodynamics and Heat Transfer	2	1	1	-	4	4	8	1				<b>GEB201</b>	<b>5</b>
15	Material Science	2	0	2	-	4	4	8	1				<b>GEB202</b>	<b>5</b>
16	European Policies and Standards	2	2	0	-	4	4	8		1			<b>GEB203</b>	<b>5</b>
17	Fluid Mechanics	2	1	1	-	4	4	8	1				<b>GEB204</b>	<b>5</b>
18	Electrical Machines and Operations	2	1	1	-	4	4	8	1				<b>GEB205</b>	<b>5</b>
19	Elective Module 3	2	1	1	-	4	4	8		1			<b>GEB206</b>	<b>5</b>
<b>Total</b>		<b>12</b>	<b>6</b>	<b>6</b>	<b>-</b>	<b>24</b>	<b>24</b>	<b>48</b>	<b>4</b>	<b>2</b>				<b>30</b>

### SEMESTER IV

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
20	Electrical Power Engineering	2	1	1	-	4	4	8		1			<b>GEB207</b>	<b>5</b>
21	Latent energy storages	2	1	1	-	4	4	8	1				<b>GEB208</b>	<b>5</b>
22	Electrical Apparatuses and installations	2	1	1	-	4	4	8	1				<b>GEB209</b>	<b>5</b>
23	Solar Energetics (electrical aspects)	2	1	1	-	4	4	8	1				<b>GEB210</b>	<b>5</b>
24	Measurement technics	2	1	1	-	4	4	8	1				<b>GEB211</b>	<b>5</b>
25	Elective Module 4	2	1	1	-	4	4	8		1			<b>GEB212</b>	<b>5</b>
<b>Total</b>		<b>12</b>	<b>6</b>	<b>6</b>	<b>-</b>	<b>24</b>	<b>24</b>	<b>48</b>	<b>4</b>	<b>2</b>				<b>30</b>



### SEMESTER V

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
26	Hybrid AER	2	1	1	-	4	4	8	1				<b>GEB301</b>	<b>5</b>
27	Green energy and protected environment	2	1	1	-	4	4	8	1				<b>GEB302</b>	<b>5</b>
28	Solar Energetic (electrical aspects) (project)	0	4	0	-	4	4	8	1				<b>GEB303</b>	<b>5</b>
29	Wind Energetics	2	1	1	-	4	4	8		1			<b>GEB304</b>	<b>5</b>
30	Biomass Energetics	2	1	1	-	4	4	8	1				<b>GEB305</b>	<b>5</b>
31	Elective Module 5	2	1	1	-	4	4	8		1			<b>GEB306</b>	<b>5</b>
<b>Total</b>		<b>10</b>	<b>9</b>	<b>5</b>	<b>-</b>	<b>24</b>	<b>24</b>	<b>48</b>	<b>4</b>	<b>2</b>				<b>30</b>

### SEMESTER VI

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
32	Introduction to Hydrogen Technology	2	1	1	-	4	4	8	1				<b>GEB307</b>	<b>5</b>
33	Optimization and energy efficiency	2	1	1	-	4	4	8	1				<b>GEB308</b>	<b>5</b>
34	Energy Management	2	2	0	-	4	4	8	1				<b>GEB309</b>	<b>5</b>
35	Photovoltaic Systems	2	0	2	-	4	4	8	1				<b>GEB310</b>	<b>5</b>
36	Alternative Energy Sources	0	0	4	-	4	4	8			1		<b>GEB311</b>	<b>5</b>
37	Elective Module 6	2	1	1	-	4	4	8		1			<b>GEB312</b>	<b>5</b>
<b>Total</b>		<b>10</b>	<b>5</b>	<b>9</b>	<b>-</b>	<b>24</b>	<b>24</b>	<b>48</b>	<b>4</b>	<b>1</b>	<b>1</b>			<b>30</b>



### SEMESTER VII

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
38	Sustainable Development and Energy Ecology	2	2	0	-	4	4	8	1				<b>GEB401</b>	<b>5</b>
39	Electromobiles	2	1	1	-	4	4	8	1				<b>GEB402</b>	<b>5</b>
40	Elective Module 7	2	1	1	-	4	4	8		1			<b>GEB403</b>	<b>5</b>
41	Elective Module 7	2	1	1	-	4	4	8		1			<b>GEB404</b>	<b>5</b>
42	Diploma Thesis-development I	0	0	12	-	12	12	24					<b>GEB405</b>	<b>10</b>
<b>Total</b>		<b>8</b>	<b>5</b>	<b>15</b>	<b>-</b>	<b>28</b>	<b>28</b>	<b>56</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>1</b>		<b>30</b>

### SEMESTER VIII

No	Course	Weekly Workload							Assessment				Code	ECTS
		L	SE	LE	PT	AT	SS	total	E	CA	PW	CT		
43	Industrial Placement	0	0	24	-	24	24	48	1	1			<b>GEB406</b>	<b>15</b>
44	Diploma Thesis-development II											1	<b>GEB407</b>	<b>15</b>
<b>Total</b>		<b>0</b>	<b>0</b>	<b>24</b>	<b>-</b>	<b>24</b>	<b>24</b>	<b>48</b>	<b>1</b>	<b>1</b>		<b>1</b>		<b>30</b>



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## ELECTIVES

### Elective Module 1

Course	Code
Alcoholic fuels	GEB105/1
Energy Storage	GEB105/2
Energy Security and management of risk	GEB105/3

### Elective Module 2

Дисциплина	Code
Solar Heating and Cooling Systems	GEB110/1
Accumulation of Solar Energy	GEB110/2
Hydrogen fuel cell technology	GEB110/3

### Elective Module 3

Дисциплина	Code
Renewable energy	GEB206/1
Green Economics	GEB206/2
Solar radiation measurement	GEB206/3

### Elective Module 4

Дисциплина	Code
Ocean energy	GEB212/1
Solar batteries	GEB212/2
Applied photochemistry	GEB212/3

### Elective Module 5

Дисциплина	Code
Electrical batteries and system	GEB306/1
Wind generators of electrical energy	GEB306/2
Geothermal Energetics	GEB306/3

### Elective Module 6

Дисциплина	Code
Piezo actuators and generators	<b>GEB312/1</b>
Hybrid systems-fuel cell-accumulator	<b>GEB312/2</b>
Nuclear energy	<b>GEB312/3</b>

### Elective Module 7

Дисциплина	Code
Meteorology and Climatology	<b>GEB403/1</b>
Nanotechnology and energy	<b>GEB403/2</b>
Hydrogen engineering – (production, storage, distribution, safety)	<b>GEB403/3</b>

### OPTIONAL COURSES

Course	Code
Technical English language	<b>01</b>
Company Internship	<b>02</b>

### III. BASIC PARAMETERS OF THE CURRICULUM

Semester	Weekly Workload							Semester Workload				Assessment			
	L	SE	LE	PT	AT	SS	total	L	SE	LE	PT	E	CA	PW	CT
I	13	7	5	-	25	25	50	195	105	75	-	4	2	0	1
II	12	8	4	-	24	24	48	180	120	60	-	4	2	0	0
III	12	5	6	-	24	24	48	180	75	105	-	4	2	0	0
IV	12	6	6	-	24	24	48	180	90	90	-	4	2	0	0
V	10	9	5	-	24	24	48	150	135	75	-	4	2	0	0
VI	10	6	8	-	24	24	48	150	90	120	-	4	1	1	0
VII	8	5	15	-	28	28	56	120	75	225	-	2	2	0	1
VIII	0	0	24	-	24	24	48	0	0	360	-	1	1	0	0
<b>Total</b>	<b>77</b>	<b>46</b>	<b>74</b>	<b>-</b>	<b>197</b>	<b>197</b>	<b>394</b>	<b>1155</b>	<b>690</b>	<b>1110</b>	<b>-</b>	<b>27</b>	<b>14</b>	<b>1</b>	<b>2</b>





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1. Term of study- **4** years, **8** semesters
2. Auditoria Workload
  - 2.1 Total – **2955** hours
  - 2.2 Lectures – 1155 hours
  - 2.3 Seminar Exercises - **690** hours
  - 2.4 Laboratory Exercises-**1110** hours
3. Total number of courses - **43**
  - 3.1. Compulsory- **33**
  - 3.2. Electives - **8**
  - 3.3. Optional - **2**
4. Assessment
  - 4.1. Exams - **27**
  - 4.2. Continuous Assessments - **14**
  - 4.3. Project Works - **1**
  - 4.4. Attendance without exam/ Defence – **2**
  - 4.5. ECTS - **240**

**Head of the Programme:** .....

(Prof. Ivan Petkov, DSc)