

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

2018

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

ECTS code: (ACS/GC)TNo

- **ACS** – “Applied Computer Science”
- **GC** –General University Courses;
- **T** – type of degree: **B** - “Bachelor”, **M** - “Master”;
- **No** – serial number of the course;

Lectures (L), Seminar Exercises (SE), Lab Exercises (LE), Practical Training/Fieldwork (PT), Auditoria Workload (total) (AT), Self-Study (SS) per week

Exam (E), Continuous Assessment (CA); Project Work (PW), Course Work (CW)/Course Tasks (CT)

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	GEB101	1
2	Mathematics I	2	2	0	-	4	4	8	1				GEB102	5
3	Physics	2	0	2	-	4	4	8	1				GEB103	5
4	Chemistry	2	0	2	-	4	4	8	1				GEB104	5
5	Basics of Economics	2	1	0	-	3	3	6	1				GC2	5
6	European Values and Culture	2	2	0	-	4	4	8		1			GC1	5
7	Elective Module 1	2	1	1	-	4	4	8		1			GEB105	5
Total		13	6	5	-	24	24	48	4	2		1		31

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			GC3	5
9	Electrical Engineering	2	1	1	-	4	4	8	1				GEB106	5
10	Mathematics	2	2	0	-	4	4	8	1				GEB107	5
11	Introduction to construction and CAD systems	2	0	2	-	4	4	8	1				GEB108	5
12	Mechanics	2	2	0	-	4	4	8	1				GEB109	5
13	Elective Module 2	2	1	1	-	4	4	8		1			GEB110	5
Total		12	8	4	-	24	24	48	4	2				30

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				GEB201	5
15	Material Science	2	0	2	-	4	4	8	1				GEB202	5
16	European Policies and Standards	2	2	0	-	4	4	8		1			GEB203	5
17	Fluid Mechanics	2	1	1	-	4	4	8	1				GEB204	5
18	Electrical Machines and Operations	2	1	1	-	4	4	8	1				GEB205	5
19	Elective Module 3	2	1	1	-	4	4	8		1			GEB206	5
Total		12	6	6	-	24	24	48	4	2				30

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			GEB207	5
21	Latent energy storages	2	1	1	-	4	4	8	1				GEB208	5
22	Electrical Apparatuses and installations	2	1	1	-	4	4	8	1				GEB209	5
23	Solar Heating and Cooling Systems	2	1	1	-	4	4	8	1				GEB210	5
24	Measurement technics	2	1	1	-	4	4	8	1				GEB211	5
25	Elective Module 4	2	1	1	-	4	4	8		1			GEB212	5
Total		12	6	6	-	24	24	48	4	2				30

SEMESTER V

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

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				GEB307	5
33	Optimization and energy efficiency	2	1	1	-	4	4	8	1				GEB308	5
34	Energy Management	2	2	0	-	4	4	8	1				GEB309	5
35	Photovoltaic Systems	2	0	2	-	4	4	8	1				GEB310	5
36	Alternative Energy Sources	0	0	4	-	4	4	8			1		GEB311	5
37	Elective Module 6	2	1	1	-	4	4	8		1			GEB312	5
Total		10	5	9	-	24	24	48	4	1	1			30

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				GEB401	5
39	Photovoltaic Systems (project)	0	4	0	-	4	4	8			1		GEB402	5
40	Elective Module 7	2	1	1	-	4	4	8		1			GEB403	5
41	Elective Module 7	2	1	1	-	4	4	8		1			GEB404	5
42	Diploma Thesis-development I	0	0	12	-	12	12	24					GEB405	10
Total		6	8	14	-	28	28	56	1	2	2	1		30

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			GEB406	15
44	Diploma Thesis-development II											1	GEB407	15
Total		0	0	24	-	24	24	48	1	1		1		30

ELECTIVES

Elective Module 1

Course	Code
Biomass for Energy, industry and Environment	GEB105/1
Energy Storage	GEB105/2
Energy Security	GEB105/3

Elective Module 2

Дисциплина	Code
Renewable Energy Strategic plans and programmes	GEB110/1
Solar Energetics	GEB110/2
Hydrogen fuel cell technology	GEB110/3

Elective Module 3

Дисциплина	Code
Energy Project Management	GEB206/1
Green Economics	GEB206/2
Solar radiation measurement	GEB206/3

Elective Module 4

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

Elective Module 5

Дисциплина	Code
Electromobiles	GEB306/1
Process Systems I	GEB306/2
Geothermal Energetics	GEB306/3

Elective Module 6

Дисциплина	Code
Piezo actuators and generators	GEB312/1
Hybrid systems-fuel cell-accumulator	GEB312/2
Concentrating Solar Panels and Collectors	GEB312/3

Elective Module 7

Дисциплина	Code
Meteorology and Climatology	GEB403/1
Energy Consumption Management	GEB403/2
Hydrogen Engineering (generation, storage, supply, security)	GEB404/3
Photoelectric Transformation of Solar Energy	GEB404/4

OPTIONAL COURSES

Course	Code
Technical English language	01
Company Internship	02

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	6	5	-	24	24	48	195	90	75	-	4	2	0	1
II	12	8	4	-	24	24	48	180	120	60	-	4	2	0	0
III	12	6	6	-	24	24	48	180	90	90	-	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	5	9	-	24	24	48	150	75	135	-	4	1	1	0
VII	6	8	14	-	28	28	56	90	120	210	-	1	2	1	1
VIII	0	0	24	-	24	24	48	0	0	360	-	1	1	0	0
Total	75	48	73	-	196	196	392	1125	720	1095	-	26	14	2	2

1. Term of study- **4** years, **8** semesters
2. Auditoria Workload
 - 2.1 Total – **2940** hours
 - 2.2 Lectures – **1125** hours
 - 2.3 Seminar Exercises - **720** hours
 - 2.4 Laboratory Exercises-**1095** hours
3. Total number of courses - **43**
 - 3.1. Compulsory- **33**
 - 3.2. Electives - **8**
 - 3.3. Optional - **2**
4. Assessment
 - 4.1. Exams - **26**
 - 4.2. Continuous Assessments - **14**
 - 4.3. Project Works - **2**
 - 4.4. Attendance without exam/ Defence - **2**

Head of the Programme:

(Prof. Ivan Petkov, DSc)