



*European  
Polytechnical  
University*

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Tel. 00359 898751012

**ENDORSED: .....**

**Rector of EPU: Prof. D-r Marin Marinov**

**„MASTER“ degree**

**Form of teaching: *full-time***

**Duration of the programme: 1,5 years**

**Professional qualification: Master-engineer**

**PROFESSIONAL DIRECTION: 5.4. ENERGETICS**

**C U R R I C U L U M**

**OF THE SPECIALITY: WIND ENERGETICS (WE)**

**2019**

**PERNIK**

**[www.epu.bg](http://www.epu.bg)**

## I. TIME SCHEDULE

Semester	Auditoria Workload	Examinations	Practical Training	Industrial/Field Placement	Practice	Work on Diploma Thesis	Vacations	Total (Number of Weeks)
I	360	5	-	-	-	-	11	25
II	360	3	-	-	-	5	5	25
III	300	2					5	25

## II. CURRICULUM

ECTS code: (WE) TNo

- WE – “Wind energetics“
- 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), Coursework (CW), Course Tasks (CT),

## COURSE STRUCTURE MASTER SOLAR ENERGETICS

Lectures (L), seminars (S), laboratory work (LW)

### First Semester

N°	Subject	Signature	L	S	LW	Auditorium Total	Self-training	Total	Assessment	Credits
1	Wind generators characteristics. Factors affecting wind power. The main constructions and	WEM1	2	1	1	4	4	8	examination	5

	<i>structure elements.</i>									
2	<i>Introduction to computational fluid dynamics and dynamics of structures</i>	<b>WEM2</b>	2	1	1	4	4	8	examination	<b>5</b>
3	<i>Wind turbine design - main principles</i>	<b>WEM3</b>	2	2	0	4	4	8	continuous assessments	<b>5</b>
4	<i>Electric machines in wind energy conversion</i>	<b>WEM4</b>	2	1	1	4	4	8	examination	<b>5</b>
5	<i>Wind electric generation schemes. Choice of electric generators</i>	<b>WEM5</b>	2	2	0	4	4	8	examination	<b>5</b>
6	Elective 1.	<b>WEM6</b>	2	2	0	4	4	9	examination	<b>5</b>
	<b>Total</b>		<b>12</b>	<b>9</b>	<b>3</b>	<b>24</b>	<b>24</b>	<b>48</b>		<b>30</b>

**Elective courses:**

Дисциплина	Код на дисциплината
<i>Measurement and certification</i>	WEM6-1
<i>Wind resources and loads on wind turbines</i>	WEM6-2
<i>Introduction to numerical modelling of wind turbine structures- Research work</i>	WEM6-3

Optimization methods	WEM6-4

## Second Semester

N <sup>o</sup>	Subject	Signature	L	S	LW	Auditorium Total	Self- training	Total	Assessment	Credits
7	Management system of a wind energy supplier. Elements-characteristics. Management optimization.	<b>WEM7</b>	2	1	1	4	4	8	examination	<b>5</b>
8	Monitoring, control and diagnostic of the wind generator basic elements and nodes	<b>WEM8</b>	2	2	1	4	4	8	course project	<b>5</b>
9	Experimental data - measurement methods, treatment, errors reduction	<b>WEM9</b>	2	2	0	4	4	8	course project	<b>5</b>
10	Potential environmental impacts of wind technology. Risk reduction	<b>WEM10</b>	2	2	0	4	4	8	course project	<b>5</b>
11	Ecological requirements in build up process of a wind generator. The basic normative acts in accordance with Euro-	<b>WEM11</b>	2	2	0	4	4	8	examination	<b>5</b>



	pean legislation.									
12	Elective 2.	<b>SEM12</b>	2	2	0	4	4	8	course project	<b>5</b>
	<b>Total</b>		<b>12</b>	<b>10</b>	<b>2</b>	<b>24</b>	<b>24</b>	<b>48</b>		<b>30</b>

### Elective courses

Дисциплина	Код на дисциплината
<i>Aeroelastic design of wind turbines -project work</i>	WEM12-1
<i>Design and manufacturing of wind turbine rotor blades</i>	WEM12-2
<i>Composite materials for wind turbine rotor blades</i>	WEM12-3
<i>Wind farm design -normatives and optimization</i>	WEM12-4

### Third Semester

N <sup>o</sup>	Subject	Signature	L	S	LW	Auditorium Total	Self-training	Total	Assessment	Credits
13	. Thesis	<b>WEM13</b>	0	0	10	10	12	22	examinations , continuous assessments	<b>15</b>

14	<i>Industrial Placemen t</i>	<b>WEM14</b>	0	0	10	10	12	22	defence	<b>15</b>
	<b>Total</b>		<b>0</b>	<b>0</b>	<b>20</b>	<b>20</b>	<b>24</b>	<b>44</b>		<b>30</b>

## II. BASIC PARAMETERS OF THE CURRICULUM

Semester	Weekly Workload							Semester Workload				Control			
	L	SE	LE	PT	AT	SS	Total	L	SE	LE	PT	E	PW	CP	CT
I	12	9	3	-	24	24	48	180	135	45	-	3	2	0	0
II	12	10	2	-	24	24	48	180	150	30	-	2	4	0	0
III	0	0	20	-	20	24	44	0	0	300	-	0	0	1	0
<b>Total</b>	<b>24</b>	<b>19</b>	<b>25</b>	<b>-</b>	<b>68</b>	<b>97</b>	<b>140</b>	<b>360</b>	<b>285</b>	<b>375</b>	<b>-</b>	<b>5</b>	<b>6</b>	<b>1</b>	<b>0</b>

**1. Duration of the programme (Срок на обучение) - 1,5 years, 3 semesters**

**2. Auditorium work load according to the curriculum**

Total (Общо) - 1020 teaching hours.

In details:

Lectures - 360 teaching hours

Seminars – 285 teaching hours

Laboratory work - 375 teaching hours

**3. Total number of subjects - 12**

**Diplom work - 1**

**4. Control (Контрол)**

- 4.1. Examinations (Изпити) - 5.
- 4.2. Continuous assessments (Текущи оценки) - 7 .
- 4.3. Course projects (Курсови проекти) -0 .

**Head of the Program Green Energetics:**

**Prof. Ivan Petkov, DSci**