## 1. PROFESSIONAL ACADEMIC NAME AND DEGREE TO BE REACHED BY COMPLETING THE STUDY

After completing the four-year studies of the first cycle of studies (240 ECTS) on the study programme: *Renewable energy sources*, academic vacationist and generic of **renewable energy sources** and degree of professional training are reached: **VII/1**.

At the end of the second cycle of studies (60 ECTS) lasting one year, the academic vocation of the **Master** of **Renewable Energy sources** and the degree of professional storage: **VII/2**.

At the end of the third cycle of studies (180 ECTS) lasting three years, the academic vocation of the **Doctor** of **Science from** Renewable **Energy Sources** and the degree of professional storage: **VIII**.

## 2. CONDITIONS FOR ENROLLING IN THE STUDY PROGRAMME

First cycle of studies:

- Completed four-year high school (IV degree) and passed the entrance exam for the first cycle of study.

Second cycle of studies:

- Completed the first cycle of studies and average ratings over 8.00. In the event that the student has a lower average work Habilitation work in an area determined by the dean of the faculty.

Third cycle of studies:

- Students who have:

    a) *completed first and second cycle studies or integrated studies, established by the study programme of the third cycle of studies or*
    b) *academic degree of master/master of the nuke set out in the study programme of the third cycle of studies*

- In the second year of the third cycle of study, students who have completed their first year of study or are missing 7 ECTS points as well as students who gained 360 ECTS points on the first and second cycles of studies can be enrolled. If the first-year curriculum is not fully agreed, the student is obliged to pass differential exams before the start of the academic year. The Doctoral Studies Commission is worth study plans and programmes and determines the number of differential exams.

## 3. LIST OF MANDATORY AND ELECTORAL CASES AND THE NUMBER OF HOURS NEEDED TO REALISE THEM

View Table 1, 2 and 3.

## 4. POINTS VALUE OF EACH CASE AND FINAL WORK EXPRESSED IN ECTS POINTS

View Table 1, 2 and 3.

**Table 1 First cycle of studies - Study programme: *Renewable energy sources***

| Num. | Code | Case Name | Sam. | Guy | Status | Active classes | | | Else Class | ESPB |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | V | KV | | |
| **FIRST YEAR** | | | | | | | | | | |
| 1. | OE11010 | Math 1 | 1 | | O | 2 | 2 | 5 | | 6 |
| 2. | OE11020 | Graphic engineering | 1 | | O | 2 | 2 | 5 | | 6 |
| 3. | OE11030 | Technical physics | 1 | | O | 2 | 2 | 4 | | 6 |
| 4. | OE11040 | Business English 1 | 1 | | O | 2 | 2 | 5 | | 6 |
| 5. | | *Elective Subject 1* | 1 | | IB | 2 | 2 | 5 | | 6 |
| | OE1105AI | *Business ethics* | | | | | | | | |
| | OE1105BI | *Software tools for statistics* | | | | | | | | |
| 6. | OE11060 | Technical mechanics 1 | 2 | | O | 2 | 2 | 5 | | 6 |
| 7. | OE11070 | Math 2 | 2 | | O | 2 | 2 | 5 | | 6 |
| 8. | OE11080 | Informatics | 2 | | O | 2 | 2 | 5 | | 6 |
| 9. | OE11090 | Business English 2 | 2 | | O | 2 | 2 | | | 6 |
| 10. | | *Elective Case 2* | 2 | | IB | 2 | 2 | 5 | | 6 |
| | OE1110AI | *Sociology* | | | | | | | | |
| | OE1110BI | *Management* | | | | | | | | |
| Total classes | | | | | | 300 | 300 | | | 60 |
| **SECOND YEAR** | | | | | | | | | | |
| 1. | OE12010 | Technical mechanics 2 | 3 | | O | 2 | 2 | 5 | | 6 |
| 2. | OE12020 | Material resistance | 3 | | O | 2 | 2 | 4 | | 6 |
| 3. | OE12030 | Machine elements | 3 | | O | 2 | 2 | 4 | | 6 |
| 4. | OE12040 | Business English 3 | 3 | | O | 2 | 2 | 5 | | 6 |
| 5. | | *Elective Case 3* | 3 | | IB | 2 | 2 | 5 | | 6 |
| | OE1205AI | *The basis of the economy* | | | | | | | | |
| | OE1205BI | *Human Resources Management* | | | | | | | | |
| 6. | OE12060 | ICT in energy | 4 | | O | 2 | 2 | 5 | | 6 |
| 7. | OE12070 | Ecosystem technologies | 4 | | O | 2 | 2 | 5 | | 6 |
| 8. | OE12080 | Environmental engineering | 4 | | O | 2 | 2 | 5 | | 6 |
| 9. | OE12090 | Business English 4 | 4 | | O | 2 | 2 | 5 | | 6 |
| 10. | | *Elective Case 4* | 4 | | IB | 2 | 2 | 5 | | 6 |
| | OE1210AI | *Renewable energy sources* | | | | | | | | |
| | OE1210BI | *Project Management* | | | | | | | | |
| Total classes | | | | | | 300 | 300 | | | 60 |
| **THIRD YEAR** | | | | | | | | | | |
| 1. | OE13010 | Thermodynamics | 5 | | O | 2 | 2 | 4 | | 6 |
| 2. | OE13020 | Fluid mechanics | 5 | | O | 2 | 2 | 4 | | 6 |
| 3. | OE13030 | Thermo technical measurements | 5 | | O | 2 | 2 | 4 | | 6 |
| 4. | OE13040 | Business English 5 | 5 | | O | 2 | 2 | 5 | | 6 |
| 5. | | *Elective Case 5* | 5 | | IB | 2 | 2 | 5 | | 6 |
| | OE1305AI | *Fossil energy* | | | | | | | | |
| | OE1305BI | *Heat transfer* | | | | | | | | |
| 6. | OE13060 | Thermo energy plants | 6 | | O | 2 | 2 | 5 | | 6 |
| 7. | OE13070 | Hydropower plants | 6 | | O | 2 | 2 | 5 | | 6 |
| 8. | OE13080 | Pumps and fans | 6 | | O | 2 | 2 | 5 | | 6 |
| 9. | OE13090 | Business English 6 | 6 | | O | 2 | 2 | 5 | | 6 |
| 10. | | *Elective Case 6* | 6 | | IB | 2 | 2 | 5 | | 6 |
| | OE1310AI | *Cooling devices* | | | | | | | | |
| | OE1310BI | *Heat pumps* | | | | | | | | |
| Total classes | | | | | | 300 | 300 | | | 60 |

| Num. | Code | Case Name | Sam. | Guy | Status | Active classes | | | Else Class | ESPB |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | V | KV | | |
| **FOURTH YEAR** | | | | | | | | | | |
| 1. | OE14010 | Energy sources and environment | 7 | | O | 2 | 2 | 5 | | 6 |
| 2. | 0E14020 | Sun energy and PCs | 7 | | O | 2 | 2 | 5 | | 6 |
| 3. | OE14030 | Solar heat systems | 7 | | O | 2 | 2 | 5 | | 6 |
| 4. | OE14040 | Biomass energy | 7 | | O | 2 | 2 | 5 | | 6 |
| 5. | | *Elective Case 7* | 7 | | IB | 2 | 2 | 5 | | 6 |
| | OE1405AI | *Solar power plants* | | | | | | | | |
| | OE1405BI | *Biofuel and biogas* | | | | | | | | |
| 6. | OE14060 | Geothermal energy | 8 | | O | 2 | 2 | 5 | | 6 |
| 7. | OE14070 | Wind farms | 8 | | O | 2 | 2 | 5 | | 6 |
| 8. | OE14080 | Fuel cells | 8 | | O | 2 | 2 | 5 | | 6 |
| 9. | | *Elective Case 8* | | | IB | 2 | 2 | 5 | | 6 |
| | OE1409AI | *Mini hydropower plants* | 8 | | | | | | | |
| | OE1409BI | *From waste to energy* | 8 | | | | | | | |
| 10. | OE14100 | Professional practice | 8 | | O | | | | 60 | |
| 11. | | Graduate work | 8 | | O | | | | | 6 |
| Total classes | | | | | | 300 | 300 | | | 60 |

**Table 2 Second study cycle**

| Num. | Code | Case Name | Sam. | Guy | Status | Active classes | | | Else Class | ESPB |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | P | V | KV | | |
| 1. | OE21010 | Methods and techniques of research | 1 | | O | 3 | 3 | 5 | | 8 |
| 2. | OE21020 | Project Management | 1 | | O | 2 | 2 | 5 | | 4 |
| 3. | OE21030 | Reengineering | 1 | | O | 3 | 3 | 5 | | 8 |
| 4. | OE21040 | Integral quality management systems | 1 | | O | 3 | 3 | 5 | | 8 |
| 5. | | *Elective Subject 1* | 2 | | IB | 3 | 3 | 5 | | 7 |
| | OE2105AI | *Renewable energy sources and their use* | | | | | | | | |
| | OE2105BI | *Solar energy* | | | | | | | | |
| | OE2105CI | *Geothermal energy* | | | | | | | | |
| 6. | | *Elective Case 2* | 2 | | IB | 3 | 3 | 5 | | 7 |
| | OE2106AI | *Photo charge systems* | | | | | | | | |
| | OE2106BI | *Wind energy* | | | | | | | | |
| | OE2106CI | *Biomass energy* | | | | | | | | |
| 7. | | *Elective Case 3* | 2 | | IB | 3 | 3 | 5 | | 7 |
| | OE2107AI | *Advanced solar heat systems* | | | | | | | | |
| | OE2107BI | *Heat pumps in conjunction with solar systems* | | | | | | | | |
| | OE2107BI | *Mini hydropower plants* | | | | | | | | |
| 8. | OE21080 | Professional practice | 2 | | O | | | | 60 | |
| 9. | | Master's degree | 2 | | O | | | | | 11 |
| Total classes | | | | | | 300 | 300 | | | 60 |

**Table 3 Third study cycle**

| Num. | Code | Case Name | Sam. | Status | P | CHEESE | ESPB |
|---|---|---|---|---|---|---|---|
| **FIRST YEAR** | | | | | | | |
| 1. | OE31010 | Methodology of scientific research work | 1 | O | 4 | 2 | 8 |
| 2. | OE31020 | Knowledge management | 1 | O | 4 | 2 | 8 |
| 3. | | *Election Block 1 Subject* | 1 | IB | 3 | 1 | 7 |
| | OE3103AI | *Global climate change, the importance of ghg cycles* | | | | | |
| | OE3103BI | *Transport technologies based on renewable energy sources* | | | | | |
| | OE3103CI | *Modern technologies of solar energy use* | | | | | |
| 4. | OE31040 | Research paper on the selection of topics and overheating of literature for doctoral dissertation | 1 | O | 0 | 4 | 8 |
| 5. | | *Election Block 2 Subject* | 2 | IB | 3 | 1 | 7 |
| | OE3105AI | *Optimization of ecotechnology processes* | | | | | |
| | OE3105BI | *Modern wind energy use technologies* | | | | | |
| | OE3105CI | *Sustainable waste management* | | | | | |
| 6. | | *Elective Block 3 Subject* | 2 | IB | 3 | 1 | 7 |
| | OE3106AI | *Fuel cells* | | | | | |
| | OE3106BI | *Heat and mass transfer phenomena* | | | | | |
| | OE3106CI | *Modern biomass energy systems* | | | | | |
| 7. | OE31070 | Production and publication of the first scientific work | 2 | O | 0 | 6 | 7 |
| 8. | OE31080 | Doctoral Dissertation - Topic 1 Research | 2 | O | 0 | 6 | 8 |
| Total classes | | | | | 255 | 345 | 60 |
| **SECOND YEAR** | | | | | | | |
| 1. | OE32010 | Manage changes | 3 | O | 4 | 2 | 8 |
| 2. | | *Election Block Item 4* | 3 | IB | 3 | 1 | 7 |
| | OE3202AI | *Passive solar systems* | | | | | |
| | OE3202BI | *Geothermal energy for heating and electricity generation purposes* | | | | | |
| | OE3202CI | *Modern utility, industrial and hazardous waste management systems* | | | | | |
| 3. | | *Election Block Case 5* | 3 | IB | 3 | 1 | 7 |
| | OE3203AI | *Zero Emission Network Strategy (MNE)* | | | | | |
| | OE3203BI | *Environmental protection of thermal energy plants* | | | | | |
| | OE3203CI | *Modelling energy intensity and carbon dioxide emissions* | | | | | |
| 4. | OE32040 | Doctoral Dissertation - Topic 2 Research | 3 | O | 0 | 6 | 9 |
| 5. | | *Election Block Case 6* | 4 | IB | 3 | 1 | 7 |
| | OE3205AI | *Perspectives of renewable energy sources and the environment* | | | | | |
| | OE3205BI | *Modern technologies of using solar energy for heating and cooling* | | | | | |
| | OE3205CI | *Modern production of biogas from primary agricultural production* | | | | | |
| 6. | OE32060 | Production and publication of other scientific work | 4 | O | 0 | 6 | 8 |
| 7. | OE32070 | Doctoral Dissertation - Topic 3 Research | 4 | O | 0 | 10 | 14 |
| Total classes | | | | | 195 | 405 | 60 |
| **THIRD YEAR** | | | | | | | |
| 1. | OE33010 | Doctoral Dissertation - Topic Research 4 | 5 | O | 0 | 10 | 14 |
| 2. | OE33020 | Writing doctoral dissertation (processing of doctoral dissertation data) | 5 | O | 0 | 10 | 14 |
| 3. | OE33030 | Production and publication of the third scientific work | 6 | O | 0 | 6 | 9 |
| 4. | OE33040 | Doctoral Dissertation - Topic Research 5 | 6 | O | 0 | 6 | 12 |
| 5. | OE33050 | Defence of doctoral dissertation | 6 | O | 0 | 8 | 11 |
| Total classes | | | | | 0 | 600 | 60 |
| **Total ESPB** | | | | | | | **180** |

## 5. CONDITIONS FOR SWITCHING FROM OTHER STUDY PROGRAMMES UNDER THE SAME OR RELATED STUDIO

Students transitioning from another study programme will be recognised as the number of certified semesters, up to six, and the exams passed will be summoned from those teaching subjects that, according to their curriculum, overlap at least 50% with the curriculum of the appropriate subject being studied at the University.

## 6. HOW TO SELECT SUBJECTS FROM OTHER STUDY PROGRAMMES

Based on a written request, students can choose other teaching subjects that are not in the subjects of their study programs, with the total burden of students not crossing 30 hours a week. The choice can only be made by those subjects studied at the University.

## 7. CONDITIONS OF ENROLLMENT IN THE NEXT SEMESTER, I.E. THE FOLLOWING YEAR OF STUDY AND COMPLETION OF STUDI

Students enroll the next semester of the same year provided that they lay more than half of the subjects of the previous semester, and if in the previous semester there are subjects covering one part of the material and in the second semester the other part of the material is then obliged to take subjects from the second semester. Students enroll next year if they passed all exams the previous year or have one subject left or 6 ECTS points.

Students complete the first cycle of study by defending **final work**.

Students complete the second cycle of studies by taking exams provided for in the curriculum and program and defending **the master 's thesis**.

Students complete the third cycle of studies by taking exams provided for in the curriculum and program and defending **doctoral dissertation**.

## 8. WAY TO PERFORM STUDIES AND HOW TO VERIFY KNOWLEDGE FOR EACH SUBJECT

**The way studies are performed** on all cycles (I, II and III) is performed by semetry where students attend and actively participate in lectures and exercises, and the active fund of lecture and exercise classes is shown in Tables 1, 2 and 3.

**The way knowledge is checked for each subject** is continuously monitored during the teaching and processing of these teaching subjects. When determining the final assessment for teaching subjects or the activity of students to be evaluated, the evaluator is obliged to evaluate the results of the total work of the student during the processing of teaching subjects, i.e. the not only the knowledge and skills that students have acquired and learned during the processing of teaching subjects, but also the results of students achieved in all forms of educational and pedagogical work, which are planned and performed for teaching subjects including the assessment of students' activities and interactions in lectures, exercises, colloquiums, seminars, workshops round tables and other forms of teaching and pedagogical work.

The height of the score depends on the points collected that are collected throughout the course of lectures and exercises, and as follows:

| | |
|---|---|
| 1. TEST 1 - first colloquium (first 50% material): | **20 points** |
| 2. TEST 2 - second colloquium (other 50% material): | **20 points** |
| 3. TEST 3 - final exam (total material): | **20 points** |
| 4. LECTURE - presence: | **5 points** |
| 5. LECTURE - active participation: | **5 points** |
| 6. EXERCISES - presence: | **5 points** |
| 7. EXERCISES - seminar work: | **10 points** |
| 8. EXERCISE - oral presentation of another topic: | **5 points** |
| 9. EXERCISE - essay or case study: | **10 points** |

TOTAL: **100 points**

The assessment of students is carried out in accordance with the number of points collected, as follows:

| RATINGS | RATING | NUMBER OF POINTS | DESCRIPTORY ASSESSMENT |
|---|---|---|---|
| F | 5 | **0-54** | **Insufficient** |
| E | 6 | **55-64** | **Enough** |
| D | 7 | **65-75** | **Nice one** |
| C | 8 | **75-84** | **Very good** |
| B | 9 | **85-94** | **Great** |
| And | 10 | **95-100** | **Exceptional-excellent** |

Exams are taken successfully, in writing or orally and in writing, i.e. practically.

If provided for in the Curriculum, due to the specificity of the subject, knowledge verification is organized in several partial tests during the processing of the teaching subject. In this case, the final assessment of the student is formed on the basis of the results of all partial tests and other knowledge checks or points collected.

## 9. OTHER ISSUES OF IMPORTANCE FOR THE PERFORMANCE OF THE STUDY PROGRAMME

The curriculum also determines the category of exercises (KV). The exercise categories will be marked with a number of 1-5:

| Rb. | Type - structure of exercises | Number of students |
|---|---|---|
| 1. | For art academies in teaching subjects in the arts. | 3 |
| 2. | For clinical teaching subjects in faculties/higher schools of medical sciences, certain teaching subjects in faculties of technical sciences, professional subjects in art academies and teaching subjects of teaching methods in faculties/higher schools of humanities and social sciences. | 5 |
| 3. | For preclinical curricula of medical sciences (sectional-autopsy exercises; anatomy, pathology, forensic medicine): teaching subjects with field exercises that require supervision of the student and instructions of an expert associate. | 10 |
| 4. | For teaching subjects with laboratory and experimental exercises. | 15 |
| 5. | For teaching subjects with auditory and field exercises. | 25 |