***COURSE STRUCTURE DIAGRAM WITH CREDITS (60 PER YEAR)***

**1st degree Study Undergraduate Professionally Oriented Study Programme**

**Energy Technology**

**Course specifications**

Legend:

L – lectures

S – seminar/project

AE – auditorial exercises

LE – laboratory exercises

CE – computer exercises

**1st Year**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WINTER SEMESTER** | **Course** | | **Lecturer** | **L** | **S** | **A.E.** | **L.E.** | **C.E.** | **Cont. hours** | **Ind. work** | **ECTS** |
| 1 | **MATHEMATICAL METHODS I** | USENIK | 42 | - | 30 | - | - | 72 | 108 | **6** |
| 2 | **FUNDAMENTALS OF PHYSICS** | MARHL | 27 | - | 30 | - | - | 57 | 93 | **5** |
| 3 | **MATERIALS IN ENERGETICS** | PRAUNSEIS | 32 | - | 10 | - | - | 42 | 78 | **4** |
| 4 | **MEASURING TECHNICS IN ENERGETICS** | VIRTIČ | 27 | - | - | 45 | - | 72 | 108 | **6** |
| 5 | **ELECTRICAL ENGINEERING** | HADŽISELIMOVIĆ | 42 | - | 30 | - | - | 72 | 108 | **6** |
| 6 | **GRAPHICS COMMUNICATIONS FOR ENGINEERS** | HREN | 30 | - | - | - | 10 | 40 | 50 | **3** |
|  | **Total** |  | **200** | **0** | **100** | **45** | **10** | **355** | **545** | **30** |
|  | | | | | | | | | | | |
| **SUMMER SEMESTER** | 7 | **MATHEMATICAL METHODS II** | USENIK | 42 | - | 30 | - | - | 72 | 108 | **6** |
| 8 | **ENERGETIC ELEKTRONICS** | ŠTUMBERGER B. | 27 | - | - | 30 | - | 57 | 93 | **5** |
| 9 | **COMPUTER SCIENCE** | HREN | 30 | - | 5 | - | 20 | 55 | 95 | **5** |
| 10 | **MEHANOENERGETICS OF ENGINES AND DEVICES** | AVSEC | 27 | - | 30 | - | - | 57 | 63 | **4** |
| 11 | **SENSORS IN ENERGETICS** | HADŽISELIMOVIĆ | 30 | 7 | 5 | 15 | - | 57 | 93 | **5** |
| 12 | **AUTOMATION IN ENERGETICS** | ŠTUMBERGER B. | 30 | - | 5 | - | 20 | 55 | 95 | **5** |
|  | **Total** |  | **186** | **7** | **75** | **45** | **40** | **353** | **547** | **30** |

**2nd Year**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course** | | | **Lecturer** | **L** | **S** | **A.E.** | **L.E.** | **C.E.** | **Cont.hours** | **Ind. work** | **ECTS** |
| **WINTER SEMESTR** | 1 | **FUNDAMENTALS OF THERMO-TECHNICS** | MARČIČ | 27 | - | 30 | - | - | 57 | 93 | **5** |
| 2 | **FUNDAMENTALS OF HYDROTECHNICS** | AVSEC | 27 | - | 30 | - | - | 57 | 93 | **5** |
| 3 | **SYSTEM CONTROL** | VIRTIČ | 27 | 10 | - | 15 | 5 | 57 | 63 | **4** |
| 4 | **BASIC PRINCIPLES OF SUPPLY SYSTEMS** | POTRČ | 27 | - | **S** | 10 | - | 57 | 63 | **4** |
| 5 | **ELECTRICAL MACHINES** | ŠTUMBERGER B. | 42 |  | - | 15 | - | 57 | 63 | **4** |
| 6 | **FUNDAMENTALS OF ELECTRICAL DEVICES AND INSTALLATIONS** | ŠTUMBERGER B. | 27 | - | - | 10 | 15 | 57 | 93 | **5** |
| 7 | **INFORMATIZATION OF POWER SYSTEMS** | HREN | 25 | - | 10 | - | 30 | 55 | 35 | **3** |
|  | **Total** |  | **202** | **10** | - | **50** | **50** | **397** | **503** | **30** |
|  | | | | | | | | | | | |
| **SUMMER SEMSTER** | **8** | **BASIC PRINCIPLES OF ENERGETIC SYSTEMS** | PREDIN | 37 | - | 20 | - | - | 57 | 123 | **6** |
| **9** | **ENERGY RESOURCES** | MEDVED | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **10** | **PROJECT MANAGEMENT** | PRAUNSEIS | 27 | - | 15 | - | - | 42 | 78 | **4** |
| **11** | **FUNDAMENTALS OF PROCESS, FIRE AND EXPLOSIVE SAFETY** | PRAUNSEIS | 15 | - | 30 | - | - | 45 | 75 | **4** |
| **12** | **ENVIRONMENTAL PROTECTION** | ŽAGAR I. | 27 | - | 30 | - | - | 57 | 33 | **3** |
| **13** | **EFFICIENT USE OF ENERGY** | KROPE | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **14** | **SOFTWARE FOR POWER ENGINEERING** | VIRTIČ | 27 | 15 | - | - | 15 | 57 | 93 | **5** |
|  | **Total** |  | **187** | **15** | **155** | **0** | **15** | **372** | **528** | **30** |

**3rd year**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WINTER SEMESTER** | **Course** | | | **L\*** | **S\*** | **A.E.\*** | **L.E.\*** | **C.E.\*** | **Cont. hours\*** | **Ind. work\*** | **ECTS** |
|  | **Selective course 1** | | 27 | 1 | 11 | 1 | 2 | 42 | 48 | **3** |
|  | **Selective course 2** | | 27 | 1 | 11 | 1 | 2 | 42 | 48 | **3** |
|  | **Course of modul 1** | | 28 | 1 | 23 | 2 | 3 | 57 | 63 | **4** |
|  | **Course of modul 1** | | 28 | 1 | 23 | 2 | 3 | 57 | 63 | **4** |
|  | **Course of modul 1** | | 28 | 1 | 23 | 2 | 3 | 57 | 63 | **4** |
|  | **Course of modul 2** | | 28 | 1 | 23 | 2 | 3 | 57 | 63 | **4** |
|  | **Course of modul 2** | | 28 | 1 | 23 | 2 | 3 | 57 | 63 | **4** |
|  | **Course of modul 2** | | 28 | 1 | 23 | 2 | 3 | 57 | 63 | **4** |
|  | **Total** | | **222** | **8** | **160** | **14** | **22** | **426** | **474** | **30** |
| \* the structure of the course (number of hours) varies from the course o course, the table represents the average of the courses | | | | | | | | | | | |
|  | | | | | | | | | | | |
| **SUMMER** |  | | **GRADUATE THESIS** |  | 10\*\* | - | - | - | 10 | 290 | **10** |
|  | | **PROFESSIONAL SKILLS** | - | 5\*\* | - | - | - | 5 | 595 | **20** |
|  | | **Total** | **-** | **15\*\*** | **-** | **-** | **-** | **15** | **885** | **30** |
| \*\*contact hours with mentor (lecturer) | | | | | | | | | | | |

**List of elective courses:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Course** | **Lecturer** | **L** | **S** | **A.E.** | **L.E.** | **C.E.** | **Cont. hours** | **Ind. work** | **ECTS** |
| 1 | **Energy Networks** | KROPE | 27 | - | 15 | - | - | 42 | 48 | **3** |
| 2 | **Fundamentals Of Protection And Control Systems** | VIRTIČ | 27 | - | 5 | 5 | 5 | 42 | 48 | **3** |
| 3 | **Renewable Energy Sources** | KROPE | 27 | - | 15 | - | - | 42 | 48 | **3** |
| 4 | **Technics And Devices In Power Production** | POTRČ | 27 | - | 10 | 5 | - | 42 | 48 | **3** |
| 5 | **Marketing And Market Research** | VODOPIVEC | 27 | 5 | 10 | - | - | 42 | 48 | **3** |
| 6 | **Business And Company Law** | BRATINA | 27 | - | 15 | - | - | 42 | 48 | **3** |
| 7 | **Basic Principles Of Cooling Technics** | MARČIČ | 27 | 5 | 10 | - | - | 42 | 48 | **3** |
| 8 | **Basic Methods Of Optimisation And Statistics** | USENIK | 27 | - | 5 | - | 10 | 42 | 48 | **3** |
| 9 | **Nuclear Nondestructive Testing Methods** | ŽAGAR T. | 27 | - | 15 | - | - | 42 | 48 | **3** |
| 10 | **Hydrogen and methanol technologies** | AVSEC | 20 | - | 15 | 7 | - | 42 | 48 | **3** |
| 11 | **Modeling of power machines and devices** | HREN | 20 | 7 | - | - | 15 | 42 | 48 | **3** |
| 12 | **Virtual environments - basic** | HREN | 20 | 7 | - | 10 | 5 | 42 | 48 | **3** |
| 13 | **Timber passive buildings** | PRAUNSEIS | 32 | 5 | - | 5 | - | 42 | 48 | **3** |
| 14 | **Energy market** | SEME | 27 | - | - | - | 15 | 42 | 48 | **3** |
| 15 | **Photovoltaic systems** | SEME | 27 | - | - | 15 | - | 42 | 48 | **3** |
|  | **Total** |  | **389** | **29** | **115** | **47** | **50** | **630** | **720** | **45** |

Specific course will be performed, if it'selected by at least 10 students.

If specific course is selected by 4-9 students, the corses will be performed in the form of individual consultations.

If specific course is selected by less then 3 students, the course will not be performed.

**List of modules:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module** | **Course** | **Lecturer** | **L** | **S** | **A.E.** | **L.E.** | **C.E.** | **Cont. hours** | **Ind. work** | **ECTS** |
| **HIDRO**  **ENERGETIC**  **MODUL 1** | **Water Machines And Hydro-Equipment** | PREDIN | 27 | - | 20 | 10 | - | 57 | 63 | **4** |
| **Alternative Hydroenergetic Systems** | PREDIN | 37 | - | 20 | - | - | 57 | 63 | **4** |
| **Power System Control** | ŠTUMBERGER B. | 27 | - | - | - | 30 | 57 | 63 | **4** |
| **HIDRO**  **ENERGETIC**  **MODUL 2** | **Electric Power Transmission** | ŠTUMBERGER B. | 27 | - | - | - | 30 | 57 | 63 | **4** |
| **Transmission Systems** | KROPE | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **Basic Principles Of Optimization Of Hydroenergetic Systems** | PREDIN | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **TERMO**  **ENERGETIC**  **MODUL 1** | **Heat Engines and Internal Combust. Engine at Energy Plant** | MARČIČ, AVSEC | 27 | 10 | 20 | - | - | 57 | 63 | **4** |
| **Termoenergetic Systems Equipment** | POTRČ | 27 | - | 20 | 10 | - | 57 | 63 | **4** |
| **Optimisation Of Power Plant** | MARČIČ | 27 | 10 | 20 | - | - | 57 | 63 | **4** |
| **TERMO**  **ENERGETIC**  **MODUL 2** | **Heat Transformers And Heat Exchangers** | AVSEC | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **Recuperation And Transfer Systems** | ŽAGAR I. | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **Energy Supply Of The Buildings** | KROPE | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **NUCLEAR MODUL 1** | **Fundamentals Of Nuclear Engineering** | ŽAGAR T. | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **Technology And Working Of Nuclear Instalations** | TRKOV | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **Materials In Nuclear Energetics** | CVIKL | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **NUCLEAR MODUL 2** | **Fundamentals Of Radiation Protection** | CVIKL | 42 | - | 10 | 5 | - | 57 | 63 | **4** |
| **Nuclear Instrumentation Laboratory** | TRKOV | 27 | - | 30 | - | - | 57 | 63 | **4** |
| **Radioactive Waste Management** | KOROŠAK | 27 | - | 30 | - | - | 57 | 63 | **4** |
|  | **Total** |  | **511** | **20** | **410** | **25** | **60** | **1026** | **1134** | **72** |

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