# Information sheet for the course
# Selected Chapters from Energetics and Environment

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| **University:** *Alexander Dubček University of Trenčín* | |
| **Faculty:** *Faculty of Industrial Technologies in Púchov* | |
| **Course unit code:** *MI-I-PV-44* | **Course unit title:** *Selected Chapters from Energetics and Environment* |
| **Type of course unit:** *optional* | |
| **Planned types, learning activities and teaching methods:**<br>*State Examination Subject ; face to face* | |
| **Number of credits:** *2* | |
| **Recommended semester:** *4th semester in the 2nd year full-time*<br>*6th semester in the 3rd year part-time* | |
| **Degree of study:** *the 2nd degree of study (Engineer's degree)* | |
| **Course prerequisites:** *Completion of all compulsory and optional courses of the study plan, including MI-I-PV-9E Energetics and Environment.* | |
| **Assessment methods:**<br>*Successful completion of the state examination subject.* | |
| **Learning outcomes of the course unit:**<br>*Student will successfully complete the state examination subject.* | |
| **Course contents:**<br>*1. Basic types of industrial furnaces, the principle of work and characteristics.*<br>*2. Energy sources, classification, definitions. Classical energy sources. Alternative, renewable energy sources.*<br>*3. Types of alternative energy sources. Solar energy – interaction between solar radiation and earth atmosphere (with objects surface), absorbance, transmittance, reflectance.*<br>*4. Ways of utilization of solar energy, passive solar energy management, basic elements of solar architecture, Trombe wall, properties of materials, thermal capacity, thermal isolation.*<br>*5. Active solar systems, types of solar collector, solar thermal electricity production, photovoltaic effect, technologies of PV modules.*<br>*6. Wind energy – types of wind power plant, types of wind turbines, description and principle of work.*<br>*7. Main factors of efficiency of wind energy management, advantages and disadvantages of wind energy management, influences on environment.*<br>*8. Hydropower – principle of electricity production, classification of power plant, description of dam. Water wheels – classification, construction and principle of work.*<br>*9. Advantages and disadvantages of classical hydraulic power. Utilization of sea waves energy – description of equipment. Tidal power plant – principle of work and influence of environment.*<br>*10. Geothermal energy – characteristics of source. Heat pump – types of equipment, sources of input energy, principle of work.*<br>*11. Geothermal energy of Slovakia and its utilization, geothermal energy in world, influence on environment.*<br>*12. Energy of biomass – definition and formation of biomass, ways of energy utilization of biomass, types of biomass, fine products of biomass, advantages of energy utilization of biomass.* | |
| **Recommended of required reading:**<br>*1. LANGFELDER, I.A KOL.: ENERGETIKA CHEMICKÉHO A POTRAVINÁRSKEHO PRIEMYSLU. BRATISLAVA: ALFA, 1992. 236 S. ISBN 80-88914-19-1*<br>*2. RIEDEL, R..: HOSPODAŘENÍ ENERGIEMI. PRAHA/BRATISLAVA: SNTL/ALFA, 1971. 252* | |

*S. ISBN: 04 - 404 - 71*
*3. TOLGYESSY, J. LESNÝ, J.: SVET HĽADÁ ENERGIU. BRATISLAVA: OBZOR, 1979. 396 S. ISBN: 735-21-85/5*
*4. BIENIK, J.: ROPA, ZEMNÝ PLYN A ŽIVOTNÉ PROSTREDIE. BRATISLAVA: ALFA, 1982. 240 S.*
*5. VOŠTA, J. MATĚJKA, Z. MACÁK, J.: ENERGETIKA. PRAHA: VŠCHT, 1999. 249 S. ISBN 80-7080-358-4*

**Language:** *Slovak*

**Remarks:**

**Evaluation history:**
Number of evaluated students: *0*

| A | B | C | D | E | FX |
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| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

**Lecturers:** *prof. Ing. Darina Ondrušová, PhD.*

**Last modification:** *31.03.2014*

**Supervisor:** *prof. Ing. Darina Ondrušová, PhD.*