

(Table 5.2) Course unit description

| | | | | |
|---|-----------------------|------------------------------|------------------------|----------------------|
| Study program : Urban engineering | | | | |
| Type and level of studies: Bachelor study | | | | |
| Course unit: Renewable energy sources | | | | |
| Teacher in charge : Milan Despotović | | | | |
| Language of instruction: English | | | | |
| ECTS: 6 | | | | |
| Prerequisites: | | | | |
| Semester: Winter semester | | | | |
| Course unit objective | | | | |
| The objective of this course is to provide students knowledge and skills in the field of renewable energy sources, such as solar energy, geothermal energy, wind energy, biomass energy and small hydro power energy. | | | | |
| Learning outcomes of Course unit | | | | |
| The students will be able to understand technical, economic and political aspects of renewable energy sources utilization, and to apply acquired knowledge and skills in further education, as well as in practice, in order to design, use or maintain systems that utilize renewable energy sources. | | | | |
| Course unit contents | | | | |
| <i>Theoretical classes</i> | | | | |
| Introduction. Wind energy. Wind power potential. Wind speed histograms. Wind speed distributions. Wind turbines – types, aerodynamics, design and economics. Geothermal energy – potential, utilization, heat pumps. Biomass energy – classification, technical description, conversion technologies. Small hydro power – principles, potential, water turbine types and selection. Solar energy – potential, components of solar radiation, estimation of solar radiation. Solar thermal heat utilization. Photovoltaic power generation. Institutional, environmental and economic aspects of renewable energy sources utilization. | | | | |
| <i>Practical classes</i> | | | | |
| Preparation, production and defense of the project that is result of the group work of a student. | | | | |
| Literature | | | | |
| Twidell, J. and Weir, A.D., Renewable Energy Resources, ISBN 0–419–25320–3 (hardback) — ISBN 0–419–25330–0 (pbk.), Taylor & Francis, 2006 | | | | |
| Number of active teaching hours | | | | Other classes |
| Lectures: 2 | Practice: 0 | Other forms of classes: 0 | Independent work: 2 | 1 |
| Teaching methods | | | | |
| The teaching method is in the form of classroom instruction complemented with discussion. Research work is based on individual or group work of a student. | | | | |
| Examination methods (maximum 100 points) | | | | |
| Exam prerequisites | No. of points: | Final exam | No. of points: | |
| Student's activity during lectures | 10 | oral examination | <i>30</i> | |
| practical classes/tests | 30 | written examination | | |
| Seminars/homework | | | | |
| Project | 30 | | | |
| Other | | | | |
| Grading system | | | | |
| Grade | No. of points | Description | | |
| 10 | > 95 | Excellent | | |
| 9 | 85-94 | Exceptionally good | | |
| 8 | 75-84 | Very good | | |
| 7 | 65-74 | Good | | |
| 6 | 55-64 | Passing | | |
| 5 | < 55 | Failing | | |