

Study program: Urban Engineering			
Type and level of studies: Bachelor Academic Studies			
Course unit: Energy and environment			
Teacher in charge: Koncalovic Davor, Ph.D.; Nikolic Danijela, Ph.D.			
Language of instruction: <i>English</i>			
ECTS: 6			
Prerequisites: None			
Semester: <i>Winter Semester</i>			
Course unit objective This course assesses current and potential future energy systems, covering resources, extraction, conversion, and end-use technologies, with emphasis on meeting regional and global energy needs in the 21st century in a sustainable manner. Lecturers will examine various renewable and conventional energy production technologies, energy end-use practices and alternatives, and consumption practices in different countries.			
Learning outcomes of Course unit After the completion of the course students will be able to understand how and why do we use energy in the way we are using it now. Students should be also able to understand scales of problems world is dealing with and our reality and possibilities to answer to ever increasing problems. Furthermore, students will be able to understand relation of energy usage to different aspects of environmental problems, politics, social and other important questions of our everyday life.			
Course unit contents Introduction on Energy (Concept. Definition. Types of energy. Energy resources. History of energy usage. Statistics etc.), Introduction on Environment (How do we impact our environment by our everyday activities? What is the role of energy in the functioning of our social system? Can we live without using so much energy etc.); Nuclear power (What is nuclear power? Is it sustainable? How did use of nuclear power change our world up to date etc.) Fossil fuels (What are fossil fuels? Are they sustainable? How do we use fossil fuels and does that use affect our environment? How? Is it there bright future for fossil fuels etc.) Renewable sources of energy (Definition. Types. How much renewable energy did we use in the past? And now? What is the future of renewables? Why we didn't already switched to renewables etc.) Transportation (How big is energy consumption in transport sector? Different models of transportation. What is sustainable transportation? Is there sustainable transportation system yet etc.) Sustainable development (What is sustainability? Did we reach it and why we didn't?) Exercises, Research study			
Literature 1. Sustainable Development for Engineers ; A Handbook and Resource Guide; Karel Mulder 2. Without the hot air ; David JC MacKay			
Number of active teaching hours			Other classes 1
Lectures: 2	Practice: 2	Other forms of classes: <i>mentoring system</i> Independent work:	
Teaching methods Interactive classroom lectures and excersises, development of two so-called introductory seminar and a final paper			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures	10	oral examination	40
practical classes/tests		written examination	
Seminars/homework	50	
Project			
Other			
Grading system			
Grade	No. of points	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	<51	Failing	