SYLLABUS

Basic data of the subject	
University	**University of Applied Sciences in Ferizaj**
Academic unit	**Faculty of Engineering and Informatics**
Program	**Industrial Engineering with Informatics**
Title of the subject	**Energy in Engineering Design**
Level	**Bachelor**
Course Status	**Core**
Year of studies	**III, Semester V**
Number of hours per week	**3**
Value of Credits - ECTS	**4**
Time / location	
Course lecturer	
Contact details	
Course Description	*This course will be focused to provide students with the knowledge of energy, their sources and their use in production and ultimately in the design of products with the manufacturing of the products using adequate energy source.*
Course objectives	*The objective of this module is to provide students with basic information on energy sources, in particular the renewable energy, availability and energy needs, conversions or transformations, and their benefits.*
Expected learning outcomes	*After successful completion of the course, students will be able to:* • *Know renewable energy sources,* • *know alternative renewable energies used in production,* • *understand environmental impacts and life cycle costs of these forms of energy,* • *understand the rationale for reducing the use of carbon forms of energy and climate change.*

Contribution to the student load (which must correspond with learning outcomes)			
Activity	**Hour**	**Day/Week**	**in Total**
Teaching (Lectures and exercises)	3	15	45
Internship			
Contacts with the teacher/consultations	1	3	3
Field exercise			
Midterm, seminars and projects.	2	4	8
Home-work			
Studying (at the library or at home)	1	30	30

Final preparation for the exam	1	5	5
Time spent in assessment (tests, quizzes, final exam)	1	2	2
Projects, presentations, etc.	1	1	1
Total			**104**
Teaching methodology	*Lectures, seminars, discussions, energy lab work*		
Prerequisites	*There are no prerequisites to start learning Renewable energy sources, efficiency and liberalization of the energy market. However, it is recommended that students have basic knowledge of Mathematics, Physics and the Windows operating system.*		
Assessment methods	*Within the semester period, seminar papers, two written tests, homework are organized, or the student has the right to undergo only the final exam which has 50 points (written/oral test), the test contains open questions, some of which are followed with pictures. The student passes the exam if he collects 51 points from all evaluation criteria,* ▪ *Written test: 35%* ▪ *Homework or other commitments: 15%* ▪ *Final exam: 50%* *Total: 100%* *Rating:* *91-100 points – graded 10 (ten);* *81-90 points – graded 9 (nine);* *71-80 points – grade 8 (eight);* *61-70 points – graded 7 (seven);* *51-60 points – grade 6 (six);* *0 -50 points – The student repeats the exam.*		
The radio of theory and practice	*60% theory with exercises and 40% practical teaching in the Laboratory. Renewable Energy Laboratory (Hall 204 – UASF) and study visit.*		
Literature			
Basic Literature	1. *Prof. Luan Voshtina, Prof. Fejzullah Krasniqi MENAXHIMI I DHE PRODHIMI I KOMBINUAR I ENERGJISË*		

Additional Literature	1. *Prof.dr. Fejzullah Krasniqi „NGROHJA DHE KLIMATIZIMI – 1 (Ngrohja)”, Universiteti i Prishtinës, Prishtinë 1997* 2. *Voshtina , L: NGROHJA, VENTILIMI DHE KLIMATIZIMI I NDËRTESAVE, BT,Tiranë* 3. *Recknagel, Śprenger, Henman: GREJANJE I KLIMATIZACIJA, përkthim nga gjermanishtja, GK, Beograd,* 4. *4. Zrnić, S.; Čulum, Ž.: GREJANJE I KLIMATIZACIJA, NK, Beograd,*

Designed learning plan	
Week	**Lectures and exercises to be held**
Week one	*Energy and work; Man and machines. Historic notes; Availability and energy requirements, conversions or transformations*
Week two	*Energy distribution. Sources and consumers;*
Week three	*Natural energy sources; The process of energy requirement;*
Week four	*World energy sources; Demand and consumption of energy;*
Week finth	*Worldwide distribution of flammable substances; Renewable energy sources.*
Week six	*Urban waste as a source of energy; Information on wind energy (eolic source);*
Week seven	*Study visit to the Center of the Research and Education Network of Kosovo - KREN, Prizren. Photovoltaic energy park*
Week eight	*Information on marine energy; Geothermal energy; Hydropower;*
Week nine	*Solar power;*
Week ten	*Characteristics and development of the technology for deriving energy from the wind, solar radiation, water potential, waste and biomass in particular;*
Week eleven	*Nuclear energy. Fission and fusion;*
Week twelve	*Life cycle costs and the environmental impact on the above mentioned forms of energy; Procedures for obtaining environmental permissions for wind equipment and hydroelectricity.*
Week thirteen	*National and international financial mechanisms that encourage the usage of low-carbon energy sources.*
Week fourteen	*Procedures of verifying the affordability, especially the cost of equipment that convert carbon to fossil fuel;*
Week fifteen	*Reasons why the usage of various forms of carbon energy should be reduced (climate change).*

Academic policies and rules of conduct
Attendance, appropriate behavior in class, participation in class activities, as well as visits to enterprises are mandatory. Students are also requested to either turn off their mobile phones or put them on silent mode, so as not to interrupt the learning process.