SYLLABUS

1. Course title:

Energy and Environment

2. Code:

ESKE404

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

[ESKE201] Electromagnetic Compatibility, [ESKE303] Energy Production

7. Class restrictions:

8. Duration / semester:

1 8

9. Weekly contact hours:

9.1. Lectures:	3
9.2. Seminars:	1
9.3. Laboratory/Practice classes:	1

10. Faculty:

Faculty of Electrical Engineering

11. Department/study program:

Electrical Engineering and Computer Science

12. Lecturer:

Ph.D. Nerdina Mehinović, associate professor

13. Lecturer's e-mail:

nerdina.mehinovic@untz.ba

14. Web site:

15. Course aims:

The main objective of this module is to provide students with basic knowledge of energy and the environment and their sustainable environment.

16. Learning outcomes:

At the end of the semester / course, successful students, who continued to perform their duties throughout the academic year, will be able to:
Understand the principles of sustainable development
Analyze forms and energy sources in terms of production and consumption
Choose the most efficient form of non-renewable and renewable energy
Recognize the importance of using renewable and non-renewable energy sources
To explain the emissions into the environment from energy objects
Learn how to remove energy-producing emissions
To explain the impact of energy on the environment

17. Course content:

Energy and development of society. Energy sources and their utilization potentials. Environmental impact of energy sector. Earth atmosphere in history. Ozone layer and important for live on Earth. Global warming and emissions of greenhouse gasses, possibilities for reduction. Climate changes. Electricity production and impact to human health and environment. Technical and economic characteristics of emission abatement technologies. Environmental regulations, standards and international agreements. Method for power plant location selection. Impact of NPP on environment: during normal operation, accidents, fuel cycles. Waste management of LIRV, decommission of NPP. Waste from electricity production. Emission reduction costs. Sustainable development: history, definitions, goals. Sustainable development indicators: what are, purposes. Energy and sustainable development. Energy chains environmental impact. External costs. Instruments for emission reduction. Optimization of emission reduction level.

18. Learning methods:

Lectures with the use of multimedia resources
Calculation (auditory) exercise
Preparation and presentation of group and individual seminar papers
Professional visits

19. Assessment methods:

The exam is written and orally. The written exam is a combination of theoretical issues and computational examples done on lectures and exercises. The final exam is oral exam consisting of essay and discussion of theoretical issues.

20. Assessment components:

The assessment of the exam is based on the total number of points the student has obtained by fulfilling the pre-requisites and passing the exam according to the quality of the acquired knowledge and skills, and it contains a maximum of 100 points and is determined according to the following scale:

Student activities (attendance) 10 points
Written part of the exam (theory + tasks) 50 points.
Final exam-oral defense of seminar work 40 points

21. Required reading list:

D. Feretić, Ž. Tomšić, D. Škanata, N. Čavlina, D. Subašić: "Elektrane i okoliš",
J.W. Tester, E.M. Drake, M.W. Golay, M.J. Driscoll, and W.A. Peters: "Sustainable Energy: Choosing Among Options",
J. A. Fay, D. Golomb: "Energy and the Environment"

22. Web sources:

23. Applicable starting from the academic year:

2016/2017

24. Adopted in the Faculty/Academy session:

04.04.2016