SYLLABUS

1. Course title:

Basics of energy

2. Code:

3. Cycle of study:

I

4. ECTS credits:

4

5. Type of course:

Mandatory

6. Prerequisites:

-

7. Class restrictions:

-

8. Duration / semester(s):

1 5

9. Weekly contact hours and student workload:

	Semester (1)	Semester (2)	(for two-semester courses)	Workload: (hours)	
9.1. Lectures	2		Classes:	33.75	
9.2. Seminars	0		Individual work:	78.67	
9.3. Laboratory / Practice classes	1		In total:	112.4	

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Production engineering

12. Lecturer:

Ph.D.Sandira Eljšan, full professor

13. Course aims:

The goal of the course is reflected in the acquisition of basic knowledge in the field of energy and energy, and energy conversion, as well as familiarization with the operation of power plants of all types and their impact on the environment. The goal of the course is for students to get basic information about power system, renewable energy sources, as well as

basic knowledge about heat exchange mechanisms in certain processes.

14. Learning outcomes:

Recognize the importance of renewable energy sources and their comparison with non-renewable energy sources.
-Identify the energy picture in the world and here.
- Solve and analyze simpler process problems in plants.
-Analyze basic melt transfer mechanisms and processes in simple examples

15. Course content:

-Dynamics of processing of teaching units by weeks of the semester:
1. Introduction. Current energy issues
2. Energy picture in BiH; energy issues in the world.
3. Development of the EES and energy conversion, operation of power plants in the EES
4. Basic characteristics of power plants.
5. Basic parts in thermal power plants (all about fossil fuel thermal power plants, heating plants ...)
6. Processes with steam power plants and degrees of utilization. Examples.
7. Processes in gas turbines. Examples.
8. TEST I
9. Hydropower and methods of utilization. Examples.
10. Operation of small hydro powerplant.
11. Nuclear energy and operation of nuclear power plants.
12. Renewable energy sources.
13. Power plants using renewable energy sources.
14 Basic mechanisms of heat exchange. Heat exchangers. Examples.
15. TEST II

16. Learning methods:

Lectures with the use of multimedia tools, active learning techniques and with active participation and discussions students
- creation of tasks for auditory exercises with the involvement of students
-consultations with teachers on a weekly basis.

17. Assessment methods:

The first test from assignments in the 8th week, and the second in the 15th week, in the last week of the semester. For those who do not pass tests, the collective written exam from the tasks is in the term of the final m, after which the theory is taken.

Grade	described	by letter	points
5 (five)	Does not meet minimum criteria	F;FX	<54
6 (six)	meets the minimum criteria	E	54 -64
7 (seven)	Generally good, but with significant flaws	D	65-74
8 (eight)	Average, with noticeable errors	C	75-84
9 (nine)	Above average, with some errors	B	85-94
10 (ten)	Exceptional success without mistakes or with minor mistakes	A	95-100

18. Assessment components:

Grading in the course:
- Seminar paper: 10 points
- Visit report: 4 points
- Test I 18 points (only tasks)
- test II 18 points (only tasks)
- theoretical final exam or remedial exam: 50 points.
Pre-examination requirements total number of points: 50 points
Final exam: 50 points
total number of points: 100 points.

19. Mandatory reading list:

1.Buljubašić I., Osmić M.: Elektrane i okolina, Soreli d.o.o. Tuzla, 2020.
2.Milovanović Z.: Termoenergetska postrojenja-teoretske osnove, Banja Luka, 2011.
3.Milovanović Z.: Termodinamičke i strujne osnove toplotnih turbomašina, Banja Luka, 2010.

20. Additional reading list:

Eljšan S.: Authorized lectures,Tuzla, 2025

21. Web sources:

22. Applicable from the academic year:

23. Adopted in the Faculty/Academy session: