SYLLABUS

1. Course title:

Thermodynamics II

2. Code:

3. Cycle of study:

I

4. ECTS credits:

5

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	3		Classes:	45	
9.2. Seminars	1		Individual work:	81.67	
9.3. Laboratory / Practice classes	0		In total:	126.7	

10. Faculty:

Faculty of Mechanical Engineering

11. Department/study program:

Energetics and Thermofluid engineering

12. Lecturer:

Ph.D. Sandira Eljšan, full professor

13. Course aims:

The goal of the course is to expand knowledge in the field of Thermodynamics, which is a continuation of the previously studied Thermodynamics I (IV semester). Within the scope of the course, the acquired knowledge will be expanded, and familiar with new areas of thermal cycles in Power plants, nuclear plants and cooling cycles, cycles in gas turbines,

engines, solving examples of single-stage and multi-stage compression, and familiar with the basics of humid air as well as processes with to them.

14. Learning outcomes:

At the end of the course, the student is expected:
- to solve circular cycles, for example, simpler energy examples from basic thermodynamic processes,
- to analyze the degrees of utilization in improved steam cycles,
- to distinguish between cycles in heat and cooling machines,
- to distinguish single-stage and multi-stage compression,
- to adopt the basic laws of moist air and processes with them.

15. Course content:

Dynamics of processing teaching units by weeks of the semester:
1.Introduction. Energy cycles on water vapor.
2. Improved steam cycles. Examples.
3.Cycles at nuclear power plants. Examples.
4. Cycles at solar plants.
5.Stoichiometric equations of combustion.
6. Processes in gas turbines. Examples.
7.Combined cycle gas and steam plants. Examples.
8.TEST I
9. Cooling cycles. Examples.
10. Processes in heat pump.
11. Thermodynamic cycles in SUS engines. Examples.
12. Processes in compressors. (single-stage and multi-stage compression). Examples.
13. Humid air. Molier's diagram of humid air. Examples.
14.Processes with humid air. - Evaporation. 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 8 th week, and the second in the 15 th week, i.e. in the last week of the semester. For those who do not pass tests (50 %), the collective written exam from the tasks is in the term of the final and remedial exam, 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:
- Test I 25 points (only tasks)
- test II 25 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. Martinovic D., H.Lulic i grupa autora: Termodinamika i termotehnika, Sarajevo, 2014
2. Galović, A: Termodinamika I, FSB, Zagreb, 2002
3. Fabris O.: Osnove inženjerske termodinamike, Pomorski fakultet u Dubrovniku, Dubrovnik 1994

20. Additional reading list:

Eljšan S. :Authorized lectures, Tuzla, 2024

21. Web sources:

22. Applicable from the academic year:

23. Adopted in the Faculty/Academy session: