SYLLABUS

1. Course title:

Electrical Machines II

2. Code:

ESKE203

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

[ESKE105] Electrical Machines I

7. Class restrictions:

8. Duration / semester:

1 5

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:

Acquisition of basic knowledge about the functioning of power transformers, synchronous and DC machines, their use and behavior in normal and emergency modes in power system.

16. Learning outcomes:

After successfully mastering the course, students are able to:
- application of acquired knowledge to solve problems of medium complexity in the field of transformers and electrical machines;
- independently perform basic testing of transformers and rotating electric machines in laboratory conditions, the presentation of test results, the implementation of the analysis and interpretation of results;
- knowledge of the operating conditions of induction, synchronous and DC machines
- analysis and comparison of DC, induction and synchronous motors
- knowledge of the external characteristics of DC, induction and synchronous machines

17. Course content:

Transients in the work of the transformer. Special power transformers. A dynamic model of synchronous machines (Parks equation), stationary regime, the parameters. Characteristics of synchronous machines. Methods to identify and measure parameters and characteristics. Angular characteristics of stability. Circuit diagram of current and operating diagrams. Synchronous motor. Three-phase short circuit. Excitation systems. Commutator machines: Constructional design - the core and windings. The working principle of the engine-generator. Magnetic Fields. Armature reaction and commutation. Types of excitation: independent, parallel, serial and compound connection. Motors - the mechanical characteristics. Generators - external characteristics. Special machine.

18. Learning methods:

Lectures, auditory and laboratory exercises. It is provided that the part of the teaching process is performed by classical methods (using frontal mode table), and a part using of the multimedia content (presentation, video and computer animation). To make students acquainted with the real conditions of production and diagnostics of electrical machines, in order to better understand the acquired theoretical knowledge, during the semester are planned visits to companies.

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:

Rating exam is based on the total number of points a student earned by completing pre-exam requirements and exams, according to the quality of the acquired knowledge and skills, and contains a maximum of 100 points, and is determined according to the following scale:

Test I 25
Test II 25
Attendance 10
Final exam 40

21. Required reading list:

Š. Masic: "Power Stop", University of Sarajevo - Faculty of Electrical Engineering in Sarajevo, Sarajevo 2005th
Harlow, H. James: "Transformers", CRC Press LLC; 2000
B.Jurkovic, Z.Smolčić "Collector machines," School books, Zagreb 1986

22. Web sources:

23. Applicable starting from the academic year:

2016/2017

24. Adopted in the Faculty/Academy session:

04.04.2016.