SYLLABUS

1. Course title:

Control of Electric Motor Drives

2. Code:

ESKE403

3. Cycle of study:

1

4. ECTS credits:

6

5. Type of course:

(•) Mandatory ( ) Elective

6. Prerequisites:

[ESKE302] Electric Motor Drives

7. Class restrictions:

Faculty of electrical engineering students, study program "Electrotechnics and computing" with realised prerequisites

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:

PhD Mensur Kasumović, assistant professor

13. Lecturer's e-mail:

mensur.kasumovic@untz.ba

14. Web site:

www.fet.ba

15. Course aims:

Course aim is that students adopts basic theoretical, mathematical and practical knowledge from control of electric motor drives.

16. Learning outcomes:

After completing the course, the students will be able: to design and dimension basic control schemes with direct current motors and induction motors; to choose correct power converter for electric motor drive, to autonomous research in vector control of electric motor drives area.

17. Course content:

Basic elements in control systems. Transfer functions of system elements: thyristor bridge, magnetic amplifier, direct current generator, synchronous generator, direct current motor, induction motor, equivalent circuit. Control of direct current motor by armature voltage. Control of direct current motor by field (excitation) voltage. Thyristor control of electric motor drives - change of rotation direction. Block schemes for direct current motor control. Electric motor drives with induction motor - equivalent circuit. Control of induction motors by stator voltage and frequency changing. Control of subsynchronous cascades (cascade with constant power, cascade with constatn torque). Scalar and vector control methods. Active and reactive power at regulated electric motor drives - harmonic components, voltage distorsion. Protection of regulated electric motor drives.

18. Learning methods:

Lectures, seminars and laboratory classes. During semester, for better understanding of teoretical knowledge, students goes to visit some regulated electric motor drives in industry.

19. Assessment methods:

The final grade is based on the continuous assessments, which are performed throughout the semester and the final exam.
Continous assesment throughout the semester consists two tests, which are combination of theoretical questions and tasks. Maximum number of points on every test is 30. Test become organized in 8. and 15. week of semester.
Maximum number of points on the final exam is 40.
Minimal number of points for succesfully passed exam is 54.

20. Assessment components:

Student can achieve maximal 100 points based on this scale:

Test I	30
Test II	30
Total during semester	60
Final exam	40
Total	100

21. Required reading list:

A. Hodžić: Upravljanje i regulacija elektromotornih pogona, NIK Grafit Lukavac i Univerzitet u Tuzli, Tuzla, 2012.
B. Jurković, Elektromotorni pogoni, Školska knjiga, Zagreb, 1978.
V. Vučković, Električni pogoni, Akademska misao, Beograd, 2002.

22. Web sources:

(max. 687 characters)

23. Applicable starting from the academic year:

2016/17

24. Adopted in the Faculty/Academy session:

04.04.2016