

Course title:	Electromagnetics
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Course code	Course status	Semester	Number of ECTS credits	Lecture hours
131005015	Mandatory	V	6	3+2

Study program:

Basic academic studies, ELECTRICAL ENGINEERING, study program: Power systems and Control (studies last for 6 semesters, 180 ECTS credits).

Prerequisites: Basics of electrical engineering I, Basics of electrical engineering II, Mathematics III.

Course aims: Encompassing knowledge from the areas of the theory of electric and magnetic field.

Teacher(s) and assistant(s):

PhD Svetozar Jovičević – teacher

PhD Ana Jovanović, assistant professor - assistant

Teaching method: Lectures (which include exercises) and consultations.

Course synopsis:

Preliminary weeks	Preparation and semester enrollment
I week	Electric and magnetic field. Basic laws of the electric and magnetic field.
II week	Generalization of the basic laws of the electric and magnetic field. Electromagnetic field. Maxwell's equations.
III week	Boundary conditions. Complex form of the Maxwell's equations. Electromagnetic field energy. Field potential.
IV week	Electrostatic field. Mirroring method. Capacity. Field distribution dependence on the nonhomogeneity of the environment.
V week	Variable separation method. Approximately solving the electrostatic problems. Electrostatic system energy. General expression for the electrostatic force. Electrostatic pressure.
VI week	First test
VII week	Free week
VIII week	Stationary electric field.
IX week	Stationary magnetic field. Magnetic circuits.
X week	Quasistationary electromagnetic field in the conductors.
XI week	Examples for the skin effect.
XII week	Second test
XIII week	Inductivity coefficients. General expression for the electromagnetic force.
XIV week	Dynamic electromagnetic field.
XV week	Electromagnetic waves in ideal dielectric and partially conducting environment.
XVI week	Final exam
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.

STUDENT WORKLOAD

Per week 6 credits x 40/30 = 8 hours	Per semester
Work hours structure:	Teaching and final exam: (8 hours) x 16= 128 hours
3 hours for teaching	Necessary preparation (before semester): 2x(8 hours)= 16 hours
2 hours for exercises	Total work hours for course: 8x30 hours= 180 hours
3 hours for individual work, including consultations	Additional work: for preparing correction of final exam, including an exam taking - up to 36 hours (the rest of the time from the first two items, up to the total work time for the course, 180 hours).
	Work time hours: 128 hours (lectures) + 16 hours (preparation) + 36 hours (additional work)

Lessons attendance is mandatory for students, as well as doing home exercises and tests.

Literature: Authorized handout: S. Jovičević, Teorijska elektromagnetika, Podgorica 1995.
Collection of the exam problems in the last five years.

The forms of knowledge testing and grading:

- 5 home exercises carry 5 points (1 point for each home work),
- First test carries 20 points,
- Second test carries 25 points,
- Final exam carries 50 points.

Student gets the passing grade by collecting 51 points at least.

Special remarks for the course: The teaching is organized for student groups with 40 students.

Teacher(s) who provided the information: PhD S. Jovičević and PhD A. Jovanović
Remark: