Course title:			***Electromagnetics***	
Course code	***Course status***	***Semester***	***Number of ECTS credits***	***Lecture hours***
131105045	**Mandatory**	**V**	**5**	**3+1**

Study program:
Basic academic studies, ELECTRICAL ENGINEERING, study program: Electronics, Telecommunications and Computer engineering (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 the electric and magnetic field, and familiarizing with elements of theory and systems of waveguides and radiation of electromagnetic waves.

Teacher(s) and assistant(s):
PhD Svetozar Jovićević – 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.
V week	Variable separation method. Approximately solving the electrostatic problems. Electrostatic system energy. General expression for the electrostatic force.
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. Examples for the skin effect.
XI week	Inductivity coefficients. General expression for the electromagnetic force.
XII week	**Second test**
XIII week	Electromagnetic waves in ideal dielectric and partially conducting environment.
XIV week	Wave polarization. Snell's and Fresnel's laws. Wave in the ionosphere. Metallic and dielectric waveguides.
XV week	Microwave resonators. Dipole and antenna radiation. Broadcast antenna parameters. Receive antenna.
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	Per semester
5 credits x 40/30 = 6 hours and 40 minutes Work hours structure: 3 hours for teaching 1 hour for exercises 2 hours and 40 minutes for individual work, including consultations	Teaching and final exam: (6 h. and 40 min.)x 16= 106 h. and 40 min. Necessary preparation (before semester): 2x(6 h. and 40 min)= 13 hours and 20 minutes Total work hours for course: 5x30 hours= 150 hours Additional work: for preparing correction of final exam, including an exam taking - up to 30 hours ((the rest of the time from the firs two items, up to the total work time for the course, 180 hours). Work time hours: 106 h 40 min. (lectures) + 13 h 20 min. (preparation) + 30 hours (additional work)

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

Literature: Authorized handout: S. Jovićević, Teorijska elektromagnetika, Podgorica 1995.
Authorized handout: S. Jovićević, Prostiranje i zračenje elektromagnetnih talasa.
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. Jovićević and PhD A. Jovanović

Remark: