

Title Electromagnetic field theory	Code 1018011210108400050
Field Electronics and Telecommunications	Year / Semester 1 / 2
Specialty -	Course core
Hours Lectures: 2 Classes: - Laboratory: - Projects / seminars: -	Number of credits 0
	Language polish

Lecturer:

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Status of the course in the study program:

- Obligatory course in the study programs of the Faculty of Electronics and Telecommunication.

Assumptions and objectives of the course:

- Students should obtain deep understanding of the nature of electromagnetic fields and waves. Knowledge and understanding of the Maxwell equations, wave propagation in space and in guided media, as well as radiation of antennas. Students should be able to perform simple calculation of fields analytically.

Contents of the course (course description):

- Electromagnetic fields definitions, media parameters. Basic laws of electromagnetic field (Gauss, Ampere's, Faraday's, Lorentz's,...). Maxwell equations in their integral and differential forms for free space and material regions. Electromagnetic waves in free space, conductors, dielectrics. Skin effect and dispersion. Energy, power and Poynting theorem. Boundary conditions, wave reflection and transmission at plane boundaries - standing-waves, wave polarization.

Introductory courses and the required pre-knowledge:

- Mathematics: fundamentals differential and integral calculus of three variables. Elements ordinary and partial differential equations, vector analysis, course of electric circuit theory.

Courses form and teaching methods:

- Lectures supported by computer programs and video demonstrations. Problem solving sessions.

Form and terms of complete the course - requirements and assessment methods:

- course is continued on the 3rd semester.

Basic Bibliography:

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Additional Bibliography:

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