Title	Code
Waves and antennas	**1018071510108410156**
Field: **Electronics and Telecommunications**	Year / Semester: **3 / 5**
Specialty: **-**	Course: **core**
Hours: Lectures: **2** Classes: **-** Laboratory: **1** Projects / seminars: **-**	Number of credits: **5**
	Language: **polish**

Lecturer:

dr hab. inż. Wojciech Bandurski prof.PP
Wydział Elektroniki i Telekomunikacji
ul. Polanka 3
60-965 Poznań
tel. 061 665 3848
e-mail: wojciech.bandurski@put.poznan.pl

Faculty:

Faculty of Electronics and Telecommunications
ul. Piotrowo 3A
60-965 Poznań
tel. (061) 665-2293, fax. (061) 665-2572
e-mail: office_det@put.poznan.pl

Status of the course in the study program:

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

Assumptions and objectives of the course:

- Students will be acquainted with three basic methods of electromagnetic waves propagation. It means the methods: analytical (separation of variables and integral transformations), numerical (FDTD), asymptotic (geometrical optics and uniform theory of diffraction (UTD))

Contents of the course (course description):

- Magnetic vector and electri scalar potentials. Review of the wave equations in the selected coordinate systems and the method of variables separation for their solution. Radar cross section (RCS) - its definition and calculation. The FDTD algorithm application to the Maxwell equations. Free space modeling by means of absorbing boundary conditions (ABS). Elements of geometrical optics and uniform theory of diffraction (UTD) with application to the ray tracing technique. Case study of scattering of the electromagnetic field by the perfectly conducting cylinder, using the methods: variables separation, FDTD and the geometrical optics.

Introductory courses and the required pre-knowledge:

- Mathematics - partial differential equations, vector analysis. Fundamentals of electromagnetic field theory.

Courses form and teaching methods:

- Lectures, computer laboratory.

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

- Written and oral examination.

Basic Bibliography:

-

Additional Bibliography:

-