

Title Foundations of Wireless Communications	Code POZ04WTS2ICE02
Field Electronics and Telecommunications	Year / Semester autumn
Specialty Information and Communication Technologies	Course elective
Hours Lectures: 2 Classes: 2 Laboratory: - Projects / seminars: -	Number of credits 5

Lecturer:

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Status of the course in the study program:

Elective course for students of Electronics and Telecommunications,

Objectives of the course:

Knowledge of the basics of radio propagation in various environments, typical phenomena and distortions; Knowledge of the basics of cellular systems and their design.

Course description:

Lectures: Radio propagation, fading channels, frequency selective fading, mobile radio communication channel modeling, propagation modeling, classification of radio systems, design of classical cellular systems, overview of the GSM system and its derivatives (GPRS and EDGE), overview of UMTS (CDMA system), directions in future mobile communications.

Classes: Calculation of the power attenuation using various propagation models, signal-to-co-channel-interference ratio calculation, calculation of the grade of service for cellular systems using traffic theory, modeling of the mobile radio channels.

Initial knowledge:

Basic knowledge of digital communication systems, signal theory, and antennas.

Teaching methods:

Lectures supported by multimedia presentations, classes – problem solutions.

Assessment methods:

Tests and written exam.

Bibliography:

1. K. Wesolowski, *Systemy radiokomunikacji ruchomej*, WKiŁ, Warszawa 1998, 1999, 2003.
2. K. Wesolowski, *Mobile Communication Systems*, John Wiley & Sons, Chichester, 2002
3. H. Bogucka, "Projektowanie i obliczenia w radiokomunikacji", Wyd. II, Wydawnictwo Politechniki Poznańskiej, Poznań 2005;
4. W. Hołubowicz, P. Płóciennik, J. Różański, *Systemy łączności bezprzewodowej*, Holkom, Poznań, 1997
5. Th. S. Rappaport, *Wireless Communications, Principles and Practice*, Prentice Hall, 1996.

6. K. Pahlavan, A. H. Levesque, „Wireless Information Networks”, John Wiley & Sons, Inc. 1995;