Course Unit Descriptor

Study Programme: Information Technology

Course Unit Title: Communication systems

Course Unit Code: OAS044

Name of Lecturer(s): Associate Professor Dalibor Dobrilović, PhD

Type and Level of Studies: Bachelor Academic Degree

Course Status (compulsory/elective): Compulsory

Semester (winter/summer): Winter

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 5

Prerequisites: None

Course Aims:

The main goal of the course is mastering the basic principles and technologies in the field of communication systems. In addition to training in theoretical aspects, students are trained for practical work and application of the same technologies.

Learning Outcomes:

After a successfully mastered course, students become familiar with the basic topics in the field of communication systems and technologies. In addition to training in theoretical aspects, students are trained for practical work and application of communication systems and technologies. The student is expected to master a certain degree of ability to work with the contemporary communication tools and technologies.

Syllabus:

Theory

The general model of the communication system. Harmonic analysis of periodic and aperiodic signals (Fourier series, transformation, integral, inverse transformation). Discretization of continuous signals. Analog and digital modulations. Transmission systems: analog and digital. RF systems. Satellite systems. Optoelectronic transmission systems. Access Networks and services: xDSL, FTTH, RITL. Mobile communication systems of second (2G) and third-generation (3G). Wireless Personal Network WPAN (Bluetooth and ZigBee).

Practice

Practical work covers laboratory exercises with solving tasks and practical problems and application examples using software for simulation of communication systems.

Required Reading:

1. Andy Bateman, Digital Communications, Design for the Real World, Addison Wesley Longman, Limited, Singapore, 1999,

2. William A. Shay, Understanding Data Communications and Networks, 2nd Edition, International Thomson Publishing, 1998.

3. John S. Seybold, Introduction to RF Propagation, ohn Wiley & Sons, New Jersey, USA, 2005.

Weekly Contact Hours: 2	**Lectures:** 2	**Practical work:** 2

Teaching Methods:

Lectures and students group work

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	Points
Active class participation	10	oral exam	30
Preliminary exam(s)	20		
Practical exam	30		
Seminar(s)	10		