Study program: Informatics

Course title: Basics of computer technology

Professor/assistant: Miodrag M. Marković

Type of course: Compulsory

ECTS credits: 6

Prerequisites: none

Aims of the course: Getting acquainted with the basic characteristics of digital systems, Boolean algebra and logical circuits.

Learning outcomes: After attending the course students will be able to independently solve problems based on the application of binary arithmetics and the use of logic circuits.

Syllabus:

Theoretical part: Analog and digital signals. Basic concepts from the theory of sets. Building elements of digital devices. Boolean algebra. The laws of Boolean algebra. Minimization - analytical and graphic (Karnaugh's maps). Numerous systems. Binary arithmetics. Alphanumeric codes. Binary encoding of decimal numbers. Negative numbers in a binary number system. Standard combination circuits (Decoder, Encoder, Multiplexer, Demultiplexer, Comparators). Sequential circuits: latch circuits and flip-flops (RS, SRS, D, T, JK, JK master-slave), Registers, Counters (ring, asynchronous, synchronous, decade) Memories - basic terms.

Practical part: Practical exercises (EWB Software Package)

Literature:

1. Digitalna elektronika, Violeta Petrović, izdavač PMF Kragujevac, 2016
2. Zbirka zadataka iz digitalne elektronike, dr Spasoje Tešić, Naučna knjiga, 1990

Total number of active classes: 60	**Lectures:** 30	**Practical classes:** 30

Teaching methods: Lectures, practical computer exercises

Grading system (maximum 100 points)

grading scale from 5 to 10: below 51 points – student fails the exam, grade 6 from 51- 60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91- 100 points.

Pre-exam obligations:	**Points:**	**Final exam:**	**Points:**
Activity during lectures	max 5	Oral exam	50
Practical training	max 5		
Written test(s)	max 30		
Term paper	max 10		
Minimum requirement for the final exam	30		