Study Program: Informatics

Type and level of studies: Bachelor studies

Course name: Electronics for Information Science

Lecturer: Stamenković M. Negovan

Status: Compulsory

ECTS: 6

Attendance Prerequisites: Basic, high-school level computer science knowledge.

Course aims

Introducing basic components and digital system functioning to students.

Course outcome

The students possess basic knowledge about the functioning of digital systems, and are able to understand specific electronic components of circuits and memories.

Course content

Theoretical part

Types of signal and their transmission. Electronic circuits components: resistors, capacitors, coils. Integrator, differentiator, electronic device components: transformers, relay, quartz crystal. Semiconductor material. Pure and doped semiconductors. PN junction, characteristics. Real semiconductor diodes and laser. Bipolar junction transistors and FETs. Amplifiers. Levels of amplification: single stage bipolar transistor and field effect transistor amplifiers, multilayer silicon components thyristors. Operational amplifier, basic circuits with operational amplifiers. Power sources: regulators, linear interrupting stabilisers and convertors. Integrated circuits. Operational amplifier applications. Transistors as circuit breakers. Multivibrators. Basic logic circuits. Complex logic circuits. Adders. Adding binary numbers. Flip-flop – SR, D, JK, MS-JK. Registers and relocation registers. Converters. Counters. Decoders. Digital memories. Bistable and monostable circuits. Relaxation oscillators. Astable linear time base generators. A/D and D/A conversion. Application in beat signal generation. Microprocessor supervisory circuits. ROM memory. RAM memory. Programmable components. Fundamentals of analogue and digital system linking.

Literature

1. Vanco Litovski, Osnovi elektronike : Teorija, reseni zadaci i ispitna pitanja; Akademska misao; 2006
2. Ivan Popović, Digitalna elektronika zbornik rešenih problema ; Akademska misao; 2006
3. Miomir Filipović, Komponente i praktična realizacija elektronskih uređaja; MikroElektronika; 2008

Number of active classes				Other classes
Lectures: 2	Practical classes: 2	Other forms of teaching:	Students' research work	

Teaching methods

Lectures, computer practice, independent project work.

Assessment (maximum 100 points)

Course assignments	**points**	Final exam	**points**
activity during lectures	**10**	written exam	**20**
practical classes	**20**	oral exam	**25**
term test(s)	**25**	.....	
seminar(s)			
Total	**55**		**45**