

Course title: Basics of computer engineering I

Course code	Course status	Semester	Number of ECTS credits	Lecture hours
131001046	Mandatory	I	5.5	2+1+1

Study program:

Basic academic studies, ELECTRICAL ENGINEERING, study program: Power systems and Control (studies last for 6 semesters, 180 ECTS credits).

Prerequisites:

No prerequisites required.

Course aims:

Introduction to basics of modern computer systems: basics of logical decision making, processing and storing data in a computer, basic functional units of a computer system, as well as basics of a computer design. Furthermore, on laboratory exercises students will be familiarized with basic components of a computer and Windows operating system.

Teacher(s) and assistant(s) first and last names:

Ph.D. Veselin Ivanović – teacher
M.Sc. Milutin Radonjić – assistant
Predrag Raković - assistant

Studying method:

Lectures, exercises and laboratory exercises, individual work on practical tasks, consultations.

Course synopsis:

Preliminary weeks Preparation and semester enrolment.

I week	Introductory lesson. Computer organization. History and development of computer engineering.
II week	Numeral systems: binary, octal, hexadecimal. Binary arithmetics. Data format.
III week	BCD code. BCD code arithmetics. Boolean algebra.
IV week	Binary logical elements. Clocking. Latch.
V week	Logic function. Logic circuit diagram.
VI week	First test
VII week	Free week
VIII week	Logic circuit minimization. Karnaugh maps.
IX week	Basic digital systems.
X week	Memories. Instruction and data storing in a computer system. RAM and ROM.
XI week	High capacity memories. Memory hierarchy.
XII week	Second test
XIII week	Central processing unit - CPU.
XIV week	CPU control. Microprogram examples.
XV week	One simple computer.
XVI week	Final exam

Final week Administrative procedures.

XVIII-XXI week Additional lessons, correction of the final exam and administrative procedures.

STUDENT WORKLOAD

per week
Working hours: 5.5 credits x 40/30 = 7 hours and 20 min.
Working hours structure:
2 hours for teaching
1 hour for exercises
1 hour for laboratory exercises
3 hours and 20 minutes for individual work, including consultations.

per semester
Teaching and the final exam: (7.33 hours) x 16 = 117 hours and 20 minutes.
Necessary preparation (before semester): 2 x (7.33 hours) = 14 hours and 40 minutes.
Total work hours for the course: 5.5 x 30 hours = 165 hours
Additional hours for preparing correction of the final exam, including the exam taking: up to 33 hours.
Work hours structure:
117 hours and 20 minutes (lectures) + 14 hours and 40 minutes (preparation) + 33 hours (additional work)

Lessons attendance is mandatory for students, as well as doing home and laboratory exercises and both tests.

Literature:

Skripta: Lj. Stanković, R. Saveljić, Osnovi računarstva I, Podgorica 1994.
V. Ivanović, handouts.
M. Radonjić, handouts with solved examples.

The forms of knowledge testing and grading:

- Home exercises carry 5x1 points.
- Laboratory test carries 5 points.
- Each test carries 20 points (40 points total).
- Final exam carries 50 points.

Student gets the passing grade by collecting 51 points at least.

Special remarks for the course: The teaching is organized for student groups with approximately 40 students and laboratory is organized for groups with 20 students. If needed, the course can be also taught in English.

Teacher(s) who provided the information: Ph.D. Veselin Ivanović

Remark: