

**Course title: Basics of computer engineering**

Course code	Course status	Semester	Number of ECTS credits	Lecture hours
132001043	Mandatory	I	6.5	3+1+1

**Study program:**

Basic applied studies, ELECTRICAL ENGINEERING, study program: Computer engineering (studies last for 6 semesters, 180 ECTS credits).

**Prerequisites:**

No prerequisites required.

**Course aims:**

Introduction to the 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.

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

Ph.D. Ljubiša Stanković – teacher  
Mr Đuro Stojanović – assistant  
Dipl. Ing. Željko Vujović - 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.
III week	Data format. BCD code. BCD code arithmetics. Boolean algebra. Binary logical elements.
IV week	Clocking. Latch.
V week	Logic function. Logic circuit diagram.
VI week	<b>First test</b>
VII week	<b>Free week</b>
VIII week	Basic digital systems.
IX week	Decoder, coder, multiplexer, demultiplexer.
X week	Computer memories. Instruction and data storing in a computer system. RAM and ROM.
XI week	High capacity memories. Memory hierarchy.
XII week	Central processing unit - CPU.
XIII week	<b>Second test</b>
XIV week	CPU control. Microprogram examples.
XV week	One simple computer.
XVI week	<b>Final exam</b>
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.

**STUDENT WORKLOAD**

per week	per semester
<b>Working hours:</b> 6.5 credits x 40/30 = 8 hours and 40 min.	<b>Teaching and the final exam:</b> (8.66 hours) x 16 = 138 hours and 40 minutes.
<b>Working hours structure:</b> 3 hours for teaching 1 hour for exercises 1 hour for laboratory exercises 3 hours and 40 minutes for individual work, including consultations.	<b>Necessary preparation</b> (before semester): 2 x (8.66 hours) = 17 hours and 20 minutes. <b>Total work hours for the course:</b> 6.5 x 30 hours = 195 hours <b>Additional hours</b> for preparing correction of the final exam, including the exam taking: up to 39 hours. <b>Work hours structure:</b> 138 hours and 40 minutes (lectures) + 17 hours and 20 minutes (preparation) + 39 hours (additional work)

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

**Literature:**

Lj. Stanković, R. Saveljić, Osnovi računarstva I, Podgorica 1994, 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 40 students. If needed, the course can be also taught in English.

**Teacher(s) who provided the information: Ph.D. Ljubiša Stanković**

**Remark:**