

<b>Course title:</b>	<b>Basics of electronics</b>
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Course code	Course status	Semester	Number of ECTS credits	Lecture hours
131004193	Mandatory	IV	7	3+2+1

**Study program:**  
Basic academic studies, ELECTRICAL ENGINEERING, study program: Electronics, Telecommunications and Computer engineering (studies last for 6 semesters, 180 ECTS credits).

**Prerequisites:** Passed final exams in courses in Basics of electrical engineering I and Basics of electrical engineering II.

**Course aims:**  
Students are introduced with basics of electronics, basic electronic components, basic and multilevel amplifiers with passive and active load, current supplies, differential and operational amplifiers, and negative feedback. At the exercise lessons, the numeric problems are solving, which correspond with the teaching lessons held in the same day. At the laboratory exercises, the same examples are performed, as the ones which are done at the teaching and exercise lessons.

**Teacher(s) and assistant(s):**  
PhD Nikša Tadić, assistant professor – teacher,  
MSc Neđeljko Lekić – assistant,  
MSc Banjević Mirjana – assistant.

**Teaching method:**  
Lectures (which include exercises), laboratory exercises. Studying and doing home exercises. Consultations.

**Course synopsis:**

Preliminary weeks	Preparation and semester enrolment.
I week	PN junction.
II week	Diode.
III week	BJT.
IV week	MOSFET.
V week	<b>First test</b>
VI week	Basic amplifying circuits with BJTs and MOSFETs with passive load.
VII week	<b>Free week</b>
VIII week	Basic amplifying circuits with BJTs and MOSFETs with active load.
IX week	Darlington's junction. Cascade amplifier with BJTs and MOSFETs.
X week	Current mirror with BJTs with passive and active load.
XI week	<b>Second test</b>
XII week	Differential amplifier with BJTs with passive and active load.
XIII week	Differential amplifier with MOSFETs with passive and active load.
XIV week	Operational amplifier.
XV week	Negative feedback.
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**

<u>per week</u>	<u>per semester</u>
<b>7 credits x 40/30 = 9 hours and 20 minutes</b>	<b>Teaching and the final exam: (9 h 20 min.) x 16 = 149 h 20 min.</b>
<b>Working hours structure:</b>	<b>Necessary preparation</b> (before semester): 2 x (9 h 20 min.) = 18 h 40 min.
<b>3</b> hours for teaching	<b>Total work hours for the course: 7 x 30 hours = 210 hours</b>
<b>2</b> hour for exercises	<b>Additional hours</b> for preparing correction of the final exam, including the exam taking: up to <b>42</b> hours (the rest of the time from the first two items, up to the total work hours for the course, 210 hours).
<b>1</b> hour for laboratory exercises	<b>Work hours structure:</b>
<b>3</b> hours and <b>20</b> minutes for individual work, including consultations.	149 h 20 min. (lectures) + 18 h 40 min. (preparation) + 42 hours (additional work)

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

**Literature:**

**The forms of knowledge testing and grading:**

- 6 home exercises carry **5** points total.
- 5 laboratory exercises carry **5** points total.
- Each test carries **20** points (**40** points total).
- Final exam carries **50** points.

Student gets the passing grade by collecting **50** points at least.

**Special remarks for the course:** The teaching is organized for student groups of about 40 students. If needed, the course can also be taught in English.

<b>Teacher(s) who provided the information: PhD Nikša Tadić, assistant prof.</b>
<b>Remark:</b>