

Course title:	Electronics
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Course code	Course status	Semester	Number of ECTS credits	Lecture hours
131105016	Mandatory	V	6	3+1+1

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

Prerequisites: No prerequisites required.

Course aims: Through this subject students are meeting with basic electronic circuits, like: circuits with operational amplifiers, filters, oscillators, power amplifiers, linear and switched sources, stabilizers, PLL circuits, etc. The methods for frequency characteristics analysis, negative feedback, circuit stability, thermal computation, etc. Mandatory and laboratory exercises are compatible with teaching lessons and curriculum is through problems and practical work.

Teacher(s) and assistant(s): PhD Zoran Mijanović – teacher, MSc Nedeljko Lekić - assistant

Teaching method: Lectures (which include exercises), laboratory exercises and consultations.

Course synopsis:

Preliminary weeks	Preparation and semester enrollment
I week	Introduction. Curriculum preview. History and evolution of electronic. Future trends.
II week	An overview of basic circuits with operational amplifiers and comparator.
III week	Frequency analysis. Asymptotic AF and PF diagrams.
IV week	Passive and active first and second order filters. Phase correctors.
V week	Systems with negative feedback. Reaction function. Negative feedback influence on circuit characteristics.
VI week	First test
VII week	Free week
VIII week	Oscillators. Oscillating conditions (round reinforcement, circuit determinant, negative impedance)
IX week	Regulation of oscillation amplitude. Oscillators in 3 points.
X week	Galvanic separation (optical, magnetic, capacitive). Insulating amplifier.
XI week	Stability of amplifier's circuits. Compensation methods.
XII week	Second test
XIII week	Power transistors. Thermal computation. Power amplifiers.
XIV week	Linear sources. Current and voltage stabilization.
XV week	Switched sources.
XVI week	Final exam
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>
6 credits x 40/30 = 8 hours Work hours structure: 3 hours for teaching 1 hour for exercises 1 hour for laboratory exercises 3 hours for individual work, including consultations	Teaching and final exam: (8 hours)x16= 128 hours Necessary preparation (before semester): 2x(7 hours and 20 minutes)= 14 hours and 40 minutes Total work hours for course: 6x30 hours= 180 hours Additional work: for preparing correction of final exam, including an exam taking - up to 33 hours (the rest of the time from the first two items, up to the total work hours for the course, 180 hours). Work time hours: 128 hours (lectures) + 14 hours and 40 min. (preparation) + 33 hours (additional work)

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

Literature: Diskretna i integrisana analogna kola-S. Marjanović, Microelectronic Circuits- Sedra/Smith, Elektronika-Stanković i Laković, Zbirka rješениh zadataka-Mijanović i Lekić, Zbirka zadataka-N.Tadić i dr., Praktikum laboratorijskih vježbi – Stojanović, Vučković i dr.

The forms of knowledge testing and grading:

- 5 home exercises carry **5** points (1 point for each home work),
- The test from laboratory exercises carries **5** points,
- Two tests carry **40** points (20 points for each midterm),
- Final exam carries **50** points.

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

Special indication for the course: The teaching is organized for student groups with 40 students, and laboratory exercises for groups with 12 students. If needed, the course can also be taught in English.

Teacher(s) who provided the information: PhD Zoran Mijanović

Remark: