<table>
<tr><td>NAZIV PREDMETA</td><td colspan="5">Fundamentals of electronics 2</td></tr>
<tr><td>Code</td><td>PMT061</td><td>Year of study</td><td colspan="4">3.</td></tr>
<tr><td>Course teacher</td><td>Siniša Antonijević</td><td>Credits (ECTS)</td><td colspan="4">5</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2">Hrvoje Turić</td><td rowspan="2">Type of instruction (number of hours)</td><td>P</td><td>S</td><td>V</td><td>T</td></tr>
<tr><td>30</td><td>15</td><td></td><td></td></tr>
<tr><td>Status of the course</td><td>mandatory</td><td>Percentage of application of e-learning</td><td colspan="4"></td></tr>
<tr><td colspan="6">OPIS PREDMETA</td></tr>
<tr><td>Course objectives</td><td colspan="5">Acquiring basic knowledge in electronics</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="5">Course enrolment requirements: none
Entry competences: understanding of semiconductor properties, PN junction and semiconductor diodes</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="5">Students are expected to be able to:
1. Describe input and output VI curves of BJTs
2. Describe hybrid model of BJT, and physical meaning of h-parameters
3. Analyze simple transistor amplifier (common emitter configuration) and transistor switch
4. Describe basic properties of transistor amplifiers in common base, collector, gate, drain and source configurations.
5. Describe feedback loop
6. Analyze transistors in Darlington pair and current mirror
7. Describe basic properties of operational amplifier and analyze basic operational amplifier circuits
8. Classify logic gate realization technologies
9. Describe basic types of bistable multivibrators</td></tr>
<tr><td>Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="5">1. BJT static VI curves, limitations in transistor operation
2. BJT dynamic characteristics. BJT as two port network – h-model
3. Amplifiers in general. BJT in common emitter configuration– DC analysis.
4. BJT in common emitter configuration – AC analysis. Basic topologies of amplifiers in other configurations.
5. Colloquium 1.
6. Transistor switch.
7. Cascading amplifiers. Darlington pair analysis. Differential amplifier in general. Current mirror. Feedback.
8. Operational amplifier (OPAMP) – basic properties and circuits with OPAMP.
9. Basic circuits with OPAMP.
10. Colloquium 2.
11. Digital electronics overview. Integrated circuit scale of integration. Truth tables of basic logic gates. Half-adder and full-adder.
12. Logic families. CMOS logic examples.
13. Sequential logic overview. Level triggered bistables.
14. Edge triggered bistables.
15. Colloquium 3.</td></tr>
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Format of instruction	Lectures, seminars, consultations.
Student responsibilities	Minimum 70% class attendance. All seminars must be successfully completed.
Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	5 ECTS credits are distributed as follows: - 30 hours of lectures – 1 ECTS credit - 15 hours of seminar – 0,5 ECTS credit - 15 hours of independent work for seminar – 0,5 ECTS credit - 90 hours of independent study for colloquiums and exam – 3 ECTS credits
Grading and evaluating student work in class and at the final exam	Student will have successfully completed the course if he/she a) achieves minimum 50% result at written exam, or b) achieves minimum 50% result at each optional colloquium In case only 1 of 3 optional colloquiums is not positive (less than 50% result), student will have an option for exam questions to be limited to chapters pertaining to this colloquium only. The student class activity is rewarded with "+". Each "+" will be cumulatively added as +1% on each subsequent colloquium result. The grade by percentages: 50% to 61% - 2 62% to 74% - 3 75% to 87% - 4 88% to 100% - 5
Required literature (available in the library and via other media)	- lecture notes (presentations available online) - solved examples (presentations available online) - V. Papić, Predavanja iz osnova elektronike, Sveučilišna skripta, 2005.
Optional literature (at the time of submission of study programme proposal)	- B. Juzbašić, Elektronički elementi, Školska knjiga, Zagreb, 1984. - P. Biljanović, Elektronički sklopovi, Školska knjiga, Zagreb, 1989. - N. Storey, Electronics: A Systems Approach, Prentice Hall, 1998. - P. Slapničar, Gotovac: Elektronički sklopovi, Sveučilište u Splitu, 2000.
Quality assurance methods that ensure the acquisition of exit competences	- communication with students - anonymous questionnaire - percentage of students that successfully complete course - self-analysis

Other (as the proposer wishes to add)	