**UNIVERSITY OF MITROVICA "ISA BOLETINI"**

| Course Curriculum Model (Syllabus) | | |
|---|---|---|
| **Fakulty:** | Faculty of Mechanical and Computer Engineering | |
| **Department:** | Computer Science and Engineering | |
| **Level:** | VI | |
| **Code of the course:** | 202-CSE | |
| **Course:** | ELECTRONIC DEVICES | |
| **Course Status:** | Obligatory | (mandatory) |
| **Semester:** | III | (autumn) |
| **Number of hours per week:** | 3+1+1 | |
| **ECTS:** | 5 | |
| **Time / location:** | | |
| **Year of studies** | II | |
| **Lecturer:** | Prof. Ass. Dr. Muzafer Shala | |
| **Assistent:** | MSc Agon Bajgora | |
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|---|---|
| **Content** | Semiconductors. Semiconductor diode. Circuits with diode. (Half wave & full wave rectifiers, diode limiters and voltage multipliers). The zener diode and other special diodes. Green Tech application and d solar panels.  BJT models for small signals and low frequencies. Basic amplifier configurations: common Emitter, common based and common collector. MOSFET models for small signals and low frequencies. Basic amplifier configurations: common sours, common gates and common drain. BJT and MOSFET multistage amplifiers. Use software MATLAB for solving diode and transistor circuits. |
| **Purpose** | This course provides a solid foundation in basic analog electronics and a thorough introduction to analog integrated circuits and programmable devices. Furthermore the course recognises the circuits and components within a system, helping students see how the circuit relates to the overall system function. |
| **Accessibility** | Upon completion of this course the student should be able to:<br>1. Acquire a basic knowledge in solid state electronics including diodes, BJT, MOSFET, and multistage amplifier.<br>2. Develop the ability to analyze and design analog electronic circuits using discrete components.<br>3. Acquire a basic concepts of Green Technology and to understand principle of operation solar panels.<br>4.  Design, construct, and take measurement of various analog circuits to compare experimental results in the laboratory with theoretical analysis.<br>5. Use MATLAB software for analyzing circuits with diodes and transistors. |

| Program | Weeks | Lecture |
|---------|-------|---------|
| | *First week:* | Introduction to Electronics |
| | *Second week:* | Diodes and Applications |
| | *Third week:* | Special-Purpose Diodes |
| | *Fourth week:* | Bipolar Junction Transistors |
| | *Fifth week:* | Transistor Bias Circuits |
| | *Sixth week:* | BJT Amplifiers |
| | *Seventh week:* | Power Amplifiers |
| | *Eighth week:* | Field-Effect Transistors (FETs) |
| | *Ninth week:* | FET Amplifiers and Switching Circuits |
| | *Tenth week:* | Amplifier Frequency Response |
| | *Eleventh week:* | Thyristors |
| | *Twelfth week:* | The Operational Amplifier |
| | *Thirteenth week:* | Basic Op-Amp Circuits |
| | *Fourteenth week:* | Special-Purpose Op-Amp Circuits |
| | *Fifteenth week:* | Active Filters |
| Literature | **Principal literature:**<br>[1] Th. Floyd, *Electronic devices,* 9th edition, Prentice Hall, 2012<br>[2] D. Neamen, Microelectronics: *Circuit analysis and Design,* 4th edition, McGraw-Hill, 2010<br><br>**Recommended Literature:**<br>[1] M. Limani, Q. Kabashi, *Elektronika-Ligjërata te autorizuara dhe ushtrime numerike,* FIEK- Prishtinë 2014 | |
| Teaching methodology | Lectures,<br>Flipped Classroom<br>Numerical exercises,<br>Software and practical exercises,<br>Discussions and work in groups together with seminary papers. | |

| Contribution to student workload (which should correspond to student learning outcomes - 1 ECTS credit = 25 hours) | | | |
|---|---|---|---|
| **Activity** | **Hours** | **Days/weeks** | **Total** |
| Lectures | 3 | 15 | 45 |
| Exercise sessions (with TA) | 2 | 15 | 30 |
| Practical work | 0 | 0 | 0 |
| Office hours | 0 | 0 | 0 |
| Fieldwork | 0 | 0 | 0 |
| Midterms, seminars | 0 | 0 | 4 |
| Homework | 2 | 2 | 4 |
| Self-study | 1 | 20 | 20 |
| Final exam preparation | 2 | 11 | 22 |
| Time spent in exams | 2 | 1 | 2 |
| Projects, presentations, etc | 2 | 1 | 2 |
| **Total** | | | **125** |

**Evaluation**

| Teaching methodology: (according to the Statute and Regulation for studies of UMIB) | |
|---|---|
| Research work | 5% |
| Numerical and practical labs | 40% |
| Simulation work | 5% |
| Work in the classroom | 20% |
| Final exam | 40%, |

**30.09.2022, Mitrovica**                                    **Course provider:**


(Name Surname)


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(Signature)