BIRZEIT UNIVERSITY

Faculty of Engineering and Technology
Electrical and Computer Engineering Department
Second Semester 2024-2025

SYLLABUS

Course number and name: ENEE2313 - ELECTRONICS 1

Credits and contact hours: Credit: 3 (Lecture: 3, Lab.: 0)

Instructor's or course coordinator's name: Mr.Mohammad AL-Jubeh

- **Office: Masri220, email: jjubeh@birzeit.edu**
- **Office hours: will be announced**

Textbook:

- **Microelectronic Circuits, Sedra & Smith, Seventh edition, 2016 .**

Reference:

- **Electronic Devices and Circuit Theory , Boylestad &Nashelstky , 11th edition,2013**
- **Electronic Circuits Discrete and Integrated, Schilling&Belove**

Specific course information

- **Description: Semiconductor materials and PN junction, diode circuit applications, bipolar junction transistor structure and operation, BJT biasing circuits, small signal BJT amplifiers (CB, CE, and CC). Field effect transistor structures and operations, FET biasing circuits small signal FET amplifiers (CG, CS, CD), multistage amplifiers, frequency response of amplifiers, Introduction to digital logic families , using simulation tools for the design, and analysis of electronic circuits**
- **Prerequisites: ENEE2311**
- **Core course for Electrical engineering**

Specific goals for the course
By the end of the course the students will be

- **Familiar with basic physics and operation of diodes, BJTs, MOSFETs and JFETs.**
- **Able to analyze diode circuits using linear models techniques.**
- **Able to design diode circuits using linear models techniques.**
- **Able to analyze BJT and FET transistor biasing circuits.**
- **Able to design BJT and FET transistor biasing circuits.**
- **Able to perform small-signal analysis of basic BJT and FET amplifier circuits.**
- **Able to perform small-signal design of basic BJT and FET amplifier circuits.**
- **Able to analyze single and multistage amplifier at low, and high frequency .**
- **Familiar with digital logic families**
- **Able to use the circuit simulator PSPICE for analysis of electronic circuits.**

(ABET) Relationship of course to Computer Engineering Program Student Outcomes:

- **(a) Ability to apply mathematics, science and engineering principles.**
- **(c) Ability to design a system, component, or process to meet desired needs.**
- **(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.**

Brief list of topics to be covered

- **Chapter 1 Electronics and Semiconductors .**
- **Chapter 3 Diodes .**
- **Chapter 4 Bipolar Junction Transistors (BJTs).**
- **Chapter 5 MOS field-Effect Transistors (MOSFETs) .**
- **Chapter 6 Building Blocks of Integrated- Circuit Amplifiers .**
- **Chapter 8 Frequency Response .**
- **Chapter A Multistage Amplifiers.**
- **Chapter B Introduction to digital logic families .**

Tentative Grading:

- **First and Second Exams 40%**
- **Final Exam 45%**
- **Projects 15%**

Policies:

- **No late submissions will be accepted.**
- **Class attendance is required by the university regulations. Come to All lectures and activities.**
- **Make-up will be allowed only for students who miss the final exam with an acceptable excuse according to the university regulations.**
- **All students are expected to comply with university rules and regulations on academic Integrity and honesty.**