



**BIRZEIT UNIVERSITY**  
**Faculty of Engineering and Technology**  
**Electrical and Computer Engineering Department**  
**Second semester 2018-2019**

**SYLLABUS**

Course number and name: **ENEE2303 - 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](mailto:jjubeh@birzeit.edu)
- **Office hours:** will be announced

**Textbook:**

- Microelectronic Circuits, Sedra & Smith, sixth edition, 2009 .

**Reference:**

- Electronic Devices and Circuit Theory , Boylestad & Nashelstky , 10<sup>th</sup> edition, 2009
- 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, PnPn and other devices, using simulation tools for the design, and analysis of electronic circuits
- **Prerequisites:** ENEE2301
- 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 .
- Able to describe the operational characteristics of the PNPN devices such as Shokley diode , SCR , DIAC , TRIAC,... and their applications
- 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 PNP and Other Devices.

**Tentative Grading:**

- First and Second Exams 35%
- Final Exam 45%
- Quizzes and Projects 20%

**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.