*EE271-3: Electronics*

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| Course code and name | EE271-3: Electronics |
| Credits units | 3 Credit units |
| Contact hours | 5 Contact hours: 2 lecture, 1 tutorial and 2 practical |
| Instructor name | Dr. Sabeur Masmoudi |
| Textbook | Electronics Devices and circuit theory, Boylestad, 10th Edition, India 2004 |
| Other supplemental materials | - Microelectronic circuits, A. S. Sedra and Kenneth C. Oxford Publishing Company, 2003<br>- Microelectronics circuits, Rashid, Mohamed H., PWS publishing company,1998 |
| | Specific course information |
| a. Course description | This course will give the students a sufficient background on the concepts of electronic. All the detail of electronic circuits are presented for both Analog and Digital electronic circuits.<br>The students will be able to deal with the following: Conduction in Metal and Semiconductor, P-N Junction Diode Circuits, BJT Bipolar Junction Transistor, FET Field Effect Transistor, Low Frequency Equivalent Circuits, Op-Amp Operational Amplifiers Design and Application, Differential Amplifiers and Multi-stage Amplifiers, Frequency Response and Design of the Differential Amplifiers, Analysis of Active Filter, Analysis and Design of Signals Generator, Tuned Amplifier Circuits Design and Applications, Power Amplifier. |
| b. Prerequisite | EE111-3 |
| c. Required / Elective | Required |
| | Course Learning Outcomes |
| <u>CLO of the Lecture Activities:</u><br>CLO1: Explain characteristic of semi-conductor using ideal and linear methods.<br>CLO2: Employ application circuits based on diodes. | |

CLO3: Examine characteristic of Zener diode.

CLO4: Identify BJT Transistors modeling: amplification and switching.

CLO5: Compare Op-Amplifiers with given gain and interface.

CLO of the Laboratory Activities:

CLO1: Verify theory and to improve knowledge learned in class.

CLO2: Formulate and solve problems related to theory.

CLO3: Design and safety conducts an experimental procedure.

CLO4: Independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable, accurate conclusion.

CLO5: Communicate critical analysis of scientific information through written reports.

CLO6: Be integrated inside a group of work and respect the team working.

Brief list of topics to be covered

- Conduction in Metal and Semiconductor

- P-N junction, Discriminate the difference of P-N junction Diode circuits

- BJT Bipolar Junction Transistor - Characteristic of FET transistors

- Re-parameter and H parameter for FET and BJT

- Op-Amp Operational circuits, and class A, AB, B, C, power amplifier

- Voltage gain of multi stage amplifier

Mapping Course Learning Outcomes to Student Outcomes

| | Lecture Activities | | | | | | |
|---|---|---|---|---|---|---|---|
| | SO1 | SO2 | SO3 | SO4 | SO5 | SO6 | SO7 |
| CLO1 | | | | | | | |
| CLO2 | | | | | | | |
| CLO3 | | | | | | | |
| CLO4 | | | | | | | |
| CLO5 | | | | | | | |
| | Laboratory Activities | | | | | | |

| | SO1 | SO2 | SO3 | SO4 | SO5 | SO6 | SO7 |
|---|---|---|---|---|---|---|---|
| CLO1 | | | | | | | |
| CLO2 | | | | | | | |
| CLO3 | | | | | | | |
| CLO4 | | | | | | | |
| CLO5 | | | | | | | |
| CLO6 | | | | | | | |