Faculty of Engineering and Technology
Electrical and Computer Engineering Department
Second Semester 2022-2023

SYLLABUS

Course number and name: ENEE2103 - Circuits and Electronics Lab

Credits and contact hours: Credit: 1 (Lecture: 0, Lab. : 3)

Instructors: Mr.Nasser Ismail & Mr. Mohammad Al-Jubeh

Specific course information
Application of electrical network theorems, step response for first and second order electrical circuits, filter circuits, Transistor characteristics and biasing, amplifier circuits, frequency response of amplifiers, operational amplifiers, voltage regulators (Lab 3hrs).
Prerequisites: (PHYS 112 or concurrent), ENEE2360

- **Core course for Computer engineering students**

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

- **Able to construct dc and ac circuits, active and passive filter circuits in the laboratory and make ac and dc voltage and current measurements, measure impedances of inductive,capacitive and resistive circuits, measure time constant of RL and RC circuits, phase and magnitude frequency response and then analyze , interpret results and compare its theoretical performance to actual performance**
- **Able to construct diode circuits, basic BJT and FET amplifier circuits in the laboratory and make AC and DC voltage and current measurements and then analyze , interpret results and compare its theoretical performance to actual performance**
- **Able to construct advanced op-amps circuits such as regulators and then analyze , interpret results and compare its theoretical performance to actual performance.**
- **Able to correctly operate electronic test equipments such as oscilloscope. function generator ,digital multi-meter .**
- **Able to write an organized written engineering report.**
- **Able to apply modern simulation tools such as PSPICE for analyses and performance evaluation of electronic circuits .**

Experiments:

- **Exp 1 Basic Measurement Techniques**
- **Exp2: Circuit Laws and Theorems**
- **Exp3: First and Second order Circuits**
- **Exp4: Sinusoidal Steady State Analysis and Testing**
- **Exp5: Filters the DC Parameters.**
- **Exp6: Diode Characteristics and Applications**
- **Exp7: Transistor as an Amplifier.**
- **Exp8: The Field Effect Transistor.**
- **Exp9: Multistage Amplifier and Frequency Response.**
- **Exp10:The Operational Amplifier.**
- **Exp11:Zener diode and Voltage Regulators**

Tentative Grading:

- **Prelabs (5 prelabs per student) 15%**
- **Reports (3 reports per student) 30%**
- **Quizzes 15%**
- **In lab report writing (final Exam) 10%**
- **Final Practical & Theoretical Exam 30%**

Policies:

- **Each student must prepare 3 individual reports, reports are submitted one week after the experiment is conducted.**
- **Each student must submit 5 prelabs, prelabs are submitted on the day the experiment is conducted**
- **Class attendance is required by the university regulations. Absence of more than two sessions will force the student to withdraw the lab.**
- **All students are expected to comply with university rules and regulations on academic Integrity and honesty.**