Faculty of Engineering and Technology
Electrical and Computer Engineering Department
Second Semester 2018-2019

SYLLABUS

Course number and name: **ENEE2103 - Circuits and Electronics Lab**

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

Instructors: Dr. Wael Hashlamon & Mr. Nasser Ismail

- **Office**: Masri building

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), ENEE236

- Core course for Computer Systems 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:

- Exp1-A: *Introduction to Simulation and Report Writing*
- Exp1-B: *Introduction to Lab Equipment and Measurement*
- 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	20%
• Reports (3 reports per student)	30%
• Quizzes	10%
• 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 and late submissions will be penalized 1 grade each day.
- Each student must submit at least 5 prelabs, if more than 5 are submitted, the grades of the best 5 prelabs will be counted.
- 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.