

COURSE PROFILE

Course Number : EE 226	Course Title : Electrical Circuit Laboratory
Required / Elective : Required	Pre-requisite : - Corequisite: EE 222
Catalog Description: Circuit simulation and design by SPICE software. Measurements using voltmeters, ammeters, oscilloscopes and other instruments. Application of circuit principles introduced in EE221 and EE222: Resistive circuits, circuit analysis, frequency response tests with RL and RC networks. Two-port circuit parameters. Passive and active filters. Design, simulation and measurement of electrical circuits.	Textbook / Required Material : Electrical Circuits Lab Manual, Electric Circuits, James W. Nilsson-Susan A. Riedel, 8 th Edition, Prentice Hall, 2007
Course Structure / Schedule : (1+0+2) 2 / 4 ECTS	
Extended Description : Electrical Circuits Laboratory is a required course for the Electronics Engineering program parallel with EE 222 course. This course combines circuit analysis techniques, simulations, and experiments, including some design aspects. The purpose of the course is to provide hands-on experience to the students so that they are able to put theoretical concepts to practice. Furthermore, students will employ power supplies, measure electrical quantities such as current, voltage, resistance, and impedance with multimeters and oscilloscopes. In addition, students will learn to simulate employing a circuit simulator such as PSPICE, write well-organized lab reports and doing experiments in safe.	
Design content : Design an active filter circuit using Pspice.	Computer usage: Circuit simulation tool: Pspice.
Course Outcomes: After completion of this course, students will be able to <ul style="list-style-type: none"> • Construct and troubleshoot DC/AC circuits, which are simple series/parallel combinations of resistance or impedance. [5],[6],[7] • Use analog & digital multimeters and scopes to correctly measure, record, tabulate and interpret measurements of circuit voltage, resistance, and impedance.[5] • Learn work in a team, to share the group responsibilities of circuit construction, troubleshooting, data measurement, and data presentation. [8],[9],[10] • Employ a circuit simulator (such as PSPICE) in solving electrical circuits.[11] • Present their projects of circuit design via oral and visual media. [9],[11] 	

- Write well-organized technical reports.[9]
- Have an ability of professional and ethical responsibility.[4]

Level of contribution of course to program outcomes:

Strong: [5],[6],[7],[8]

Average: [4],[9],[10],[11]

Some: -

Recommended reading:

Introduction to Electric Circuits, R.C. Dorf and J.A. Svoboda, 7th edition, Wiley 2006

Fundamentals of Electric Circuits, C.K.Alexander, M.N.O.Sadiku, 2nd edition, McGraw Hill 2004

Teaching Methods:

Pre-readings, preliminary works, lecture and group work.

Assessment Methods:

Laboratory reports, class survey in lab., term project, preliminary works, quizzes

Student Workload:

Preparatory reading and pre-works	10 hrs
Lectures,workshop, discussions	14 hrs
Homeworks, laboratory reports	30 hrs
Projects	15 hrs
Laboratory work	28 hrs
Final Exam	3 hrs
TOTAL	100hrs ... to match 25 x 4 ECTS

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