The Hebrew University of Jerusalem

Syllabus

INTRODUCTION TO ELECTRICAL ENGINEERING - 83335

Last update 28-08-2023

HU Credits: 5

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Applied Physics

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof. Ori Katz

Coordinator Email: orik@mail.huji.ac.il

Coordinator Office Hours: Coordinate in advance

Teaching Staff:

Prof Ori Katz,
Mr. Benzy Laufer

Course/Module description:
EECS as a series of levels of abstraction, Lumped circuits and elements; Kirchoff's laws; Thevenin and Norton equivalents; Serial and Parallel connections; Non linear sources and elements; low signal analysis; First order circuits; ZIR and ZSR of linear circuits. Second order circuits: ZIR and ZSR, High order circuits using Laplace method; Introduction to linear and time-invariant circuits; Convolution; Phasors; Sinusoidal steady-state analysis; Resonant circuits. Coupling Elements: Inductors, transformers and controlled sources. Introduction to Diode.

Course/Module aims:
See learning outcomes

Learning outcomes - On successful completion of this module, students should be able to:
Analysis of electrical circuits in the time and frequency plain(first and second order).

Attendance requirements(%):
0

Teaching arrangement and method of instruction: Frontal lecture

Course/Module Content:
Lumped circuits and elements; Kirchoff's laws; Thevenin and Norton equivalents; Serial and Parallel connections; Non linear sources and elements; low signal analysis; First order circuits; ZIR and ZSR of linear circuits. Second order circuits: ZIR and ZSR, High order circuits using Laplace method; Introduction to linear and time-invariant circuits; Convolution; Phasors; Sinusoidal steady-state analysis; Resonant circuits. Coupling Elements: Inductors, transformers and controlled sources. Introduction to Diodes

Required Reading:
NA

Additional Reading Material:

חומר עזר ניתן למצוא בספר:

Agarwal, Anant, and Jeffrey Lang. Foundations of analog and digital electronic circuits. Elsevier, 2005.

Grading Scheme:

Written / Oral / Practical Exam 93 %

Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 7 %

Additional information:

The homework grade is calculated based on 80% of the highest-scoring homework assignments. In other words, 11 out of 14 exercises (if fewer exercises are given, the calculation will be adjusted accordingly).

In addition, during the course, there will be an opportunity to earn an additional 13 bonus points through 13 bonus questions that will be given throughout the semester.