

ESc201A: Introduction to Electrical Engineering

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Course Objectives

- Introduce you to the broad field of electronics
- Analyze and design electronic circuits and small-scale systems
- Hands on experience in building and analyzing electronic circuits in laboratory

Course Syllabus

- Conceptually divided into three parts
 - Electric circuit analysis
 - Analog electronic devices and circuits
 - Digital electronics

Course Syllabus

Electric Circuit Analysis	Lecture Hours
Circuit analysis techniques and theorems: Nodal, Mesh, Superposition, Thevenin, Norton	5
Transient Analysis of RC, RL, and RLC Circuits	2
Sinusoidal Steady State Analysis	3
Transfer Function and Frequency Response	2

Course Syllabus

Analog Electronic Devices and Circuits	Lecture Hours
Operational Amplifiers and waveform Generation	5
Semiconductors, diodes and diode Circuits	4
Transistors and Amplifiers	4

Course Syllabus

Digital Electronics	Lecture Hours
Numbering system, logic gates, Combinational circuits	4
Flip-flops, Sequential Circuit Design	5
Data Converters	3

Textbook and References

- Textbook: **Essentials of Electrical and Computer Engineering**, D. V. Kearns Jr. and J. D. Irwin, Pearson, 2004 (Indian edition available)
 - Copies will be available in Central Library shortly
- References:
 - Engineering Circuit Analysis, W. Hayt and J. E. Kemmerly and S. Durbin, TATA McGraw Hill
 - **The Art of Electronics**, Horowitz and Hill, 2nd /3rd Edition, Cambridge Publishing

Schedule

- Lectures
 - M W Th 17:10 – 18:00
 - Venue: L7 (LHC)
- Labs
 - M T W F (Depending on batch) 14:00 – 16:50
 - Venue: Core Labs (CL 105 and 102)
- Tutorial
 - T 17:10 – 18:00
 - Venue: TB103-112, TB201, TB210

Evaluation

S.No.	Description	Marks
1.	Two Quizzes (45 minutes each)	30 marks
2.	One Mid-Semester Examination	40 marks
3.	One End-Semester Examination	70 marks
4.	Tutorial mini 10-minutes problem	20 marks
5.	One Laboratory Examination	20 marks
6.	Weekly Laboratory Performance	20 marks
Total		200 marks

Tutorials

- Each week you get homework assignment sheets containing questions, exercises, and problems
- You should attempt to solve assignment sheets
- **You are NOT required to submit your solutions**
- Problems will be discussed in tutorials by tutors
- Each tutorial will have **a 10 minute quiz** (at the beginning of the class) based on homework assignment. This quiz will be graded and used in evaluation

Instructors

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