ENGR 201 : ELECTRICAL FUNDAMENTALS

Transcript title

Electrical Fundamentals

Credits

4

Grading mode

Standard letter grades

Total contact hours

60

Lecture hours

30

Lab hours

30

Recommended preparation

PH 202/212 and MTH 251/252.

Course Description

Topics covered in this course include: DC and 1st order transient analysis, Ohm's Law, Kirchhoff's Law (KCL and KVL), nodal analysis, branch analysis, source transformations, Thevenin and Norton equivalent circuits, maximum power transfer, operational amplifiers, inductance, capacitance, and transient response of RL and RC.

Course learning outcomes

1. Apply Kirchoff's laws to analyze a circuit with both independent and dependent sources; check results for consistency and determine power use by devices in the circuit.
2. Apply node-voltage techniques to analyze a circuit with both independent and dependent sources; check results for consistency and determine power use by devices in the circuit.
3. Apply mesh-current techniques to analyze a circuit with both independent and dependent sources; check results for consistency and determine power use by devices in the circuit.
4. Determine the Thevenin and Norton equivalent circuits for a circuit with both independent and dependent sources.
5. Describe mathematically and conceptually the transient behavior of capacitors and inductors in planar circuits.
6. Apply the ideal rules describing the behavior of an op amp to predict the performance of simple circuits containing such devices.

General education/Related instruction lists

- Science not Lab