Alternating current Course

Course Syllabus

1. Analyse the characteristics of and relationship between basic electrical quantities (resistance, inductance, reactance, current, voltage, charge, power).

2. Examine the behaviours and characteristics of alternating current (waveforms, periods, frequency, phase angle).

3. Analyse the effects of, and relationships between, reactance, resistance, and impedance.

4. Explain the differences and relationships between different circuit types (series, parallel, series-parallel).

5. Safely and competently operate power supply equipment (AC, function generators).

6. Safely and competently operate measurement equipment (multimeters, oscilloscopes).

7. Design, analyse, and test basic linear AC networks.

8. Explain how alternating voltage is generated.

9. Apply principles of magnetism and electromagnetism.

10. Analyse simple magnetic circuits.

Course Content and Topics • Electromagnetism • AC generation • Oscilloscopes • Resistive AC circuits • Inductive reactance, RL circuits • Transformer action • Capacitive reactance, RC circuits • RLC circuits and resonance

Textbooks

Texts and Resource Materials (Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)

Textbook Floyd, Thomas L & Buchla, David M. Electronics Fundamentals: A Systems Approach 2014