ELEC 2001 CIRCUIT THEORY

Credit Points 10

Legacy Code 300005

Coordinator Jeffrey Zou (https://directory.westernsydney.edu.au/search/name/Jeffrey Zou/)

Description This subject aims to equip the student with the tools needed for the design and analysis of electrical and electronic circuits. It also introduces various techniques of circuit analysis, mutual coupling, frequency response and two-port networks.

School Eng, Design & Built Env

Discipline Electrical Engineering

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) ELEC 1003 AND
MATH 1019 OR
MATH 1035

Equivalent Subjects ELEC 2002 - Circuit Theory (WSTC AssocD)

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Apply the basic principles of analysing an electric circuit
2. Apply Kirchhoff's Voltage and Current laws and demonstrate their use in a number of electric circuit configurations
3. Apply nodal analysis, mesh analysis and linear circuit theorems to electric circuits.
4. Apply the Laplace Transform to electric circuits
5. Draw conclusions from frequency responses.
6. Mathematically analyse frequency-selective filters.
7. Describe and utilise magnetically coupled circuits
8. Describe and utilise two-port networks.

Subject Content

Phasors relationships for Circuit Elements
Kirchoff's Laws in frequency domain
Impedance combinations
Sinusoidal Steady state analysis (Nodal Analysis, Mesh Analysis, Superposition Theorem and Thevenin equivalent Circuits)
AC Power Analysis (Instantaneous and Average Power, RMS value, Maximum Power and Power factor correction)
Magnetically coupled circuits(Mutual Inductance, Energy in a coupled Circuit)
Frequency response
Laplace Transform and its applications in circuits analysis
Two port network

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Practical	3 hours (per practical) Approx. 5 pages	20	N	Individual
Intra-session Exam	1.5 hours	20	N	Individual
Final Exam	2 hours	60	N	Individual

Teaching Periods

Autumn (2024)

Penrith (Kingswood)

On-site

Subject Contact Jeffrey Zou (https://directory.westernsydney.edu.au/search/name/Jeffrey Zou/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2001_24-AUT_KW_1#subjects)

Parramatta City - Macquarie St

On-site

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ELEC2001_24-AUT_PC_1#subjects)

Sydney City Campus - Term 2 (2024)

Sydney City

On-site

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