EE-407 **Fundamentals of electrical circuits and systems II**

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Cursus	Sem.	Type
Energy Science and Technology	MA1, MA3	Opt.

Language of teaching	English
Credits	2
Session	Winter
Semester	Fall
Exam	Written
Workload	60h
Weeks	14
Hours	**2 weekly**
Courses	1 weekly
Exercises	1 weekly
Number of positions	

Summary

This course provides an introduction to the theory and analysis methods of electrical circuits.

Content

- Electrical circuit
- Basic quantities (Charge, current, voltage, power and energy)
- Basic circuit elements (Resistance, capacitance, inductance, voltage and current sources)
- Kirchhoff's laws
- Fundamental Theorems (Superposition, Thévenin, Norton, Maximum Power Transfer)
- Analysis Methods (Nodal Analysis, Mesh Analysis)
- Circuit in Sinusoidal Regime (Phasors, impedance)
- Three-Phase Circuits
- Transients Analysis

Teaching methods

Ex cathedra. Exercises on paper. Computer exercises using LTSpice software.

Assessment methods

Written exam

Supervision

Office hours	Yes
Assistants	Yes

Resources

Bibliography

C. K. Alexander and M. N. O. Sadiku, "Fundamentals of Electric Circuits," McGraw-Hill, New York, 2000.

Ressources en bibliothèque

- Analyse des circuits électriques / [Charles] Alexander, [Matthew] Sadiku ; [traduit par Marius Dancila et Dragos Dancila]
- C. K. Alexander and M. N. O. Sadiku, "Fundamentals of Electric Circuits," (7th ed. 2020)

Notes/Handbook

Lecture notes

Moodle Link

- https://go.epfl.ch/EE-407