PHYS-114 **General physics: electromagnetism**

Dil Hugo

Cursus	Sem.	Type
Communication systems	BA3	Obl.
Computer science	BA3	Obl.
HES - IN	H	Obl.
HES -SC	H	Obl.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	Written
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Summary

The course first develops the basic laws of electricity and magnetism and illustrates the use in understanding various electromagnetic phenomena.

Content

ELECTRICITY AND MAGNETISM
Electric fields: electric charges and fields; Coulomb's law; Gauss's law
Electric potential and energy: potential; energy; capacitance and capacitors; dielectric materials
Magnetism: magnetic forces and fields; Ampere's law; Biot-Savart law
Electromagnetism: electromotive force; Farady's law; inductance and inductors; Maxwell's equations
Electromagnetic waves: electromagnetic spectrum; antennas

Learning Prerequisites

Recommended courses

General Physics I

Learning Outcomes

By the end of the course, the student must be able to:

- Formulate approach for solving physics problems
- Analyze physical systems
- Establish competence in complex problem solving

Transversal skills

- Use a work methodology appropriate to the task.
- Take feedback (critique) and respond in an appropriate manner.
- Access and evaluate appropriate sources of information.

Teaching methods

Ex cathedra with demonstrations, exercises in class

Assessment methods

only final written exam

Supervision

Assistants	Yes

Resources

Bibliography

polycopiés / course notes