

PHYS-200

**Physics III**

Dil Hugo

Cursus	Sem.	Type
Physics	BA3	Obl.

Language of teaching	English
Credits	6
Session	Winter
Semester	Fall
Exam	Written
Workload	180h
Weeks	14
<b>Hours</b>	<b>6 weekly</b>
Courses	4 weekly
Exercises	2 weekly
<b>Number of positions</b>	

**Summary**

The students understand and apply the physics of fluids, and the basics of electromagnetism and electronic schemes

**Content****Physics of fluids**

Fluid kinematics, Navier-Stokes equation; perfect fluid dynamics; incompressible viscous fluid dynamics; eddies; flow stability; Reynolds number; transition to turbulence

**Electromagnetism**

Electrostatics, electric field and potential; stationary electrical currents; RCL circuits; magnetostatics; electric and magnetic fields in matter; polarization and magnetization; time-dependent electromagnetic field; Faraday's law; Maxwell's equations; electromagnetic energy; Poynting vector; Hertz dipole.

**Learning Outcomes**

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

- Formulate simplifying hypotheses of a model of a physical phenomenon
- Solve problems and applications of the treated material
- Critique the results of a model of a physical phenomenon
- Apply developed physical models to problem and application solving
- Design a model of a physical phenomenon

**Teaching methods**

Lectures and exercise sessions

**Assessment methods**

Written exam

**Supervision**

Office hours	Yes
Assistants	Yes
Forum	Yes

**Resources****Bibliography**

Richard Phillips Feynman: The Feynman Lectures on Physics  
Kip S. Thorne & Roger D. Blandford: Modern Classical Physics  
David J. Griffith: Introduction to Electrodynamics

### Ressources en bibliothèque

- [Modern Classical Physics / Thorne](#)
- [Introduction to Electrodynamics / Griffith](#)
- [The Feynman Lectures on Physics / Feynman](#)

### Notes/Handbook

Course script

### Moodle Link

- <https://go.epfl.ch/PHYS-200>

### Prerequisite for

Physique IV