MATH-202(c) **Analysis III**

De Faveri Alexandre

Cursus	Sem.	Type
Electrical and Electronical Engineering	BA3	Obl.
HES - EL	H	Obl.
HES - GM	H	Obl.
Materials Science and Engineering	BA3	Obl.
Mechanical engineering	BA3	Obl.

Language of teaching	English
Credits	5
Session	Winter
Semester	Fall
Exam	Written
Workload	150h
Weeks	14
Hours	**5 weekly**
Courses	3 weekly
Exercises	2 weekly
Number of positions	

Summary

The course studies the fundamental concepts of vector analysis and Fourier-Laplace analysis with a view to their use in solving multidisciplinary problems in scientific engineering.

Content

Vector Analysis
The gradient, curl, divergence, and Laplacian operators. Line integrals and surface integrals. Vector fields and potential fields. Green's, divergence, and Stokes's theorems.
Fourier and Laplace Analysis
Fourier series. Parseval's identity. Fourier transforms. Plancherel's identity. Laplace transforms. Applications to ordinary differential equations. Applications to partial differential equations.

Learning Prerequisites

Required courses

Analyse I, Analyse II, Algèbre linéaire.

Teaching methods

Ex cathedra lectures and exercises sessions.

Assessment methods

Written exam

Supervision

Office hours	No
Assistant.e.s	Yes
Forum	Yes

Resources

Virtual desktop infrastructure (VDI)

Yes

Bibliography

B. Dacorogna et C. Tanteri, *Analyse avancée pour ingénieurs*, PPUR 2018.

Ressources en bibliothèque

- Find the references at the Library

Notes/Handbook

Course notes will be provided

Moodle Link

- https://moodle.epfl.ch/course/view.php?idnumber=MATH-202(c)

Prerequisite for

Analysis IV