MATH-203(d) **Analysis III (for IC)**

Antolin Sanchez Pablo

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

Language of teaching	English
Credits	6
Session	Winter
Semester	Fall
Exam	Written
Workload	180h
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.
- Curvilinear integrals and surface integrals.
- Vector and potential fields.
- Green's, divergence, and Stokes' theorems.

Fourier analysis and Laplace transforms

- Fourier series
- Identity of Parceval.
- Distributions.
- Fourier transforms.
- Identity of Plancherel.
- 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)

No

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-203(d)

Prerequisite for

Analysis IV