MATH-202(c)

Analysis III

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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. 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. Fourier transforms. Identity of Plancherel. Laplace transforms. Applications to ordinary differential equations. Applications to partial differential equations.

Learning Prerequisites

Required courses

Analyse I, Analyse II, Algèbre linéaire.
Analysis I, Analysis II, Linear algebra.

Assessment methods

Written exam

Resources

Moodle Link

- https://go.epfl.ch/MATH-202_c