

MATH-203(a) **Analysis III (for SV, MT)**

Monin Leonid

Cursus	Sem.	Type
HES - MT	H	Obl.
Life Sciences Engineering	BA3	Obl.
Microtechnics	BA3	Obl.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	Written
Workload	120h
Weeks	14
Hours	4 weekly
Lecture	2 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, rotational, 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 Parseval. 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

Exam written

Supervision

Office hours	No
Assistants	Yes
Forum	No

Resources**Moodle Link**

- https://go.epfl.ch/MATH-203_a