Politecnico di Torino

Academic Year 2010/11 (first time established in A.Y.2007/08)

02LSBJA

Calculus III

1st degree and Bachelor-level of the Bologna process in Electronic And Computer Engineering - Vercelli (III FACOLTA' DI INGEGNERIA)

Teacher	Status	SSD	Les	Ex	Lab	Years Stability
Ferrarotti Massimo	AC	MAT/03	5	5	0	1

SSD	CFU	Activities	Area context
MAT/05	10	A - Di base	Matematica, informatica e statistica

NOTA: Il programma non e stato modificato rispetto a quello dell'anno accademico 2009/10

Objectives of the course

To provide the fundamental concepts about calculus in several variables and in the theory of Fourier series.

Expected skills

At the end of the course the student is expected to be able to deal with problems in differential and integral calculus in several cariables, including continuity and differentiability of functions of several variables, the calculation of free and constrained extremals, multiple integration in several variables, analysis of vector fields, line and surface integrals, Fourier series

Prerequisites

Analysis in one variable, as given in the courses of Calculus I and Calculus II, has to be known in order to deal with the topics of the present course.

Syllabus

elementary calculus. Implicit functions. Extremals of functions of several variables. Lagrange multipliers. Multiple integration. Improper integrals. The formula of change of variables in multiple integrals, the Jacobian. Vector fields. The conservative case. Line integrals. Surface integrals Flux of a vector field through a surface. The gradient, curl, and divergence operators. Green formulas. The divergence Theorem. Stokes Theorem. Fourier series and their convergence. Orthonormal systems in functions spaces.

Laboratories and/or exercises

There will be class exercises on each part of the course.

Bibliography

R. Adams, Calculus, Pearson ed.

Revisions / Exam

The exam will consist of a written examination on the topics indicated above. An oral examination can be required as well in addition.

Programma definitivo per l'A.A.2009/10

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m@il