COURSE DETAIL

DIFFERENTIAL GEOMETRY
Country Sweden
Host Institution Lund University
Program(s) Lund University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mathematics
UCEAP Course Number 188
UCEAP Course Suffix
UCEAP Official Title DIFFERENTIAL GEOMETRY
UCEAP Transcript Title DIFFERENTAL GEOMTRY
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

The course providers an introduction to classic differential geometry, important for further studies in the subject and in relevant areas of physics. The course treats the geometry of curves and surfaces, especially in three dimensions. In particular, the concepts of curvature and torsion are studied. The course covers: The geometry of curves in Euclidean space, their curvature and torsion and how these determine the curves. The geometry of surfaces in Euclidean space, their first and second fundamental forms, the Gauss map, principal curvatures, Gaussian curvature and mean curvature. Theorema Egregium and a deep analysis of geodesics and their behavior both locally and globally. Gauss-Bonnet's Theorem: two different local versions and the famous global version.

Language(s) of Instruction
English

Host Institution Course Number
MATM33

Host Institution Course Title
DIFFERENTIAL GEOMETRY

Host Institution Campus
Lund

Host Institution Faculty
Science

Host Institution Degree

Host Institution Department

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