

# Primary Area of Specialization: General Theory of Relativity / Quantum Field Theory

Module No.: MN-P-SP-GR-QFT

## Course: Geometry in Physics

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Category	Type	Language	Teaching Hours	CP	Semester
Specialized Course	Lecture	English	4+2	9	ST

### Requirements

#### Preparation:

Training in theoretical physics at the B.Sc. level

#### Form of Testing and Examination:

written or oral examination

#### Length of Course:

1 semester

**Aims of the course:** The course introduces the background in differential geometry necessary to understand the geometrically oriented languages of modern theoretical physics. Applications include the coordinate invariant formulation of electrodynamics, phase space and symplectic mechanics, and a brief introduction to the foundations of general relativity.

#### Contents of the course:

- exterior calculus
- manifolds
- Lie groups
- fibre bundles

**Recommended literature:** M. Göckeler & T. Schücker, Differential geometry, gauge theory, and gravity, Cambridge University Press, 1987.