

# General Theory of Relativity / Quantum Field Theory

Module No.: MN-P-SP-GR-QFT, MN-PN-GR-QFT, MN-PN-WaMa

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## Course: Relativity and Cosmology I

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Category	Type	Language	Teaching Hours	CP	Semester
Core Course	Lecture	English	4+2	9	WiSe

### Requirements for participation:

Training in theoretical physics at the B.Sc. level

### Type of module examinations:

Written or oral examination and one oral examination at the end of the module

### Duration of the course:

1 semester

### Aims of the course:

Introduction into Einstein's theory of general relativity and its major applications

### Contents of the course:

- Gravity as a manifestation of geometry
- Differential geometry I
- Einstein field equations
- Experimental tests
- Gravitational waves
- Schwarzschild solution

### Recommended literature:

1. J. B. Hartle, [Gravity: An introduction to Einstein's general relativity](#)
2. S. Carroll, Spacetime and Geometry
3. C. Misner, K. Thorne, J.A. Wheeler, Gravitation