## Module description

### Module title

Theoretical Physics 1 and 2 for Pre Service Teachers - Fundamentals

### Abbreviation

11-L-T12-152-m01

### Module coordinator

Managing Director of the Institute of Theoretical Physics and Astrophysics

### Module offered by

Faculty of Physics and Astronomy

### ECTS

4

### Method of grading

Only after succ. compl. of module(s)

### Duration

2 semester

### Module level

undergraduate

### Other prerequisites

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### Contents

- Basic physical laws and elementary methods of theoretical physics.
- Quantum Mechanics: Schrödinger equation, one-dimensional quantum mechanics, quantum mechanics Abstract (operator formalism), angular momentum, spin.
- Thermodynamics: Heat, entropy, thermal equilibrium, measured variables, efficiency, Thermodynamic potentials, phase transitions.

### Intended learning outcomes

The students know the basic principles, contexts and elementary methods of Theoretical Physics, theoretical mechanics, quantum mechanics, thermodynamics, electrodynamics and Statistical Physics. They are able to discuss the acquired theoretical concepts and to attribute them to bigger physical contexts.

### Courses

(V (4) + V (4))

Module taught in: Ü: German or English

### Method of assessment

oral examination of one candidate each (approx. 30 minutes)

Language of assessment: German and/or English

### Allocation of places

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### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Module appears in

First state examination for the teaching degree Gymnasium Physics (2015)