Course Unit Descriptor

Study Programme: Master of Applied Mathematics	
Course Unit Title: Equations of Mathematical Physics	
Course Unit Code: MB22	
Name of Lecturer(s): Professor Marko Nedeljkov	
Type and Level of Studies: Master Academic Degree	
Course Status (compulsory/elective): Elective	
Semester (winter/summer): Summer	
Language of instruction: English	
Mode of course unit delivery (face-to-face/distance learning): Face-to-face	
Number of ECTS Allocated: 5	
Prerequisites: None	

Course Aims:

Demonstration of PDE methods in physics and other sciences.

Learning Outcomes:

Basic principles of mathematical modeling and finding of physically relevant solutions.

Syllabus:

Theory

Compressible fluid dynamics (gas dynamics)

Incompresssible models (Navier-Stokes equation)

Hyperbolic waves (Klaein-Gordon, Schroedinger equations)

Models in life sciences

Stochastic models

Practice

Problems corresponding to theoretical part.

Required Reading:

1. G.B. Whitham, Linear and Nonlinear Waves, II ed. Wiley Interscience, 1999.

2. M. Nedeljkov, Introduction to Nonlinear Wave Models, Szeged-Novi Sad 2011.

Weekly Contact Hours: 6	**Lectures:** 3	**Practical work:** 1

Teaching Methods:

Lectures and students group work

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Preliminary exam(s)	50	oral exam	50

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.