

Title Mathematical Methods in Physics and Technique (MlwFT)	Code 1010401231010410693
Field TECHNICAL PHYSICS	Year / Semester 2 / 3
Specialty -	Course core
Hours Lectures: 2 Classes: 1 Laboratory: - Projects / seminars: -	Number of credits 3
	Language polish

Lecturer:

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Status of the course in the study program:

Core course of the study for Technical Physics, Faculty of Technical Physics.

Assumptions and objectives of the course:

The course is intended to provide the student with the mathematics he needs for advanced study in physics and engineering science

Contents of the course (course description):

curvilinear coordinates, differential vector operations in curvilinear coordinates, the Kepler problem. Calculus of variations ? one and more then one dependent and independent variable. Functions of a complex variable ? Cauchy?s integral formula, Laurent expansion, Special functions. Tensor analysis in differential geometry, in electrodynamics, in special and general relativity. Fourier and Laplace transforms

Introductory courses and the required pre-knowledge:

The knowledge of mathematical analysis, algebra and physics.(the core course)

Courses form and teaching methods:

lecture + classes

Form and terms of complete the course - requirements and assessment methods:

Written and oral examination

Basic Bibliography:

1. FW. Byron, RF. Fuller ?Matematyka w fizyce klasycznej i kwantowej? vol. 1 i 2, PWN, W-a 19 73
2. D. Arfken ?Mathematical methods for physicists? Academic Press, NY 1966.
3. IM Gelfand, SW Fomin ?Rachunek wariacyjny? PWN, W-a 1979.
4. JL Synge, A Schild ?Rachunek tensorowy? PWN, W-a 1964.
5. W Żakowski, W Leksiński ?Matematyka? cz. 4, WNT, W-wa 1995.
6. J Stefaniak, H Kamiński, G Sypniewska ? Kamińska ?Fizyka matematyczna? WPP 2008

Additional Bibliography:

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