Module title: Overview Differential Equations and Complex Analysis for Teaching Degree (German Gymnasium)

Abbreviation: 10-M-DFL-Ü-191-m01

Module coordinator: Dean of Studies Mathematik (Mathematics)

Module offered by: Institute of Mathematics

ECTS: 12

Method of grading: numerical grade

Duration: 2 semester

Module level: --

Other prerequisites: --

Contents:

Complex differentiability and Cauchy-Riemann differential equations, path integrals and Cauchy integral theorems, isolated singularities, meromorphic functions and Laurent series, residue theorem and applications, Weierstraß product theorem and theorem of Mittag-Leffler, conformal maps; existence and uniqueness theorem, continuous dependence of solutions on initial values, systems of linear differential equations, matrix exponential series, linear differential equations of higher order.

Intended learning outcomes:

The student is acquainted with fundamental concepts and methods in complex analysis and the theory of ordinary differential equations. He/She is able to relate these concepts with one another, and realises the advantages of thinking across the borders of different branches in mathematics.

Courses:

(type, number of weekly contact hours, language — if other than German)

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Method of assessment:

(type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

oral examination of one candidate each (20 to 40 minutes)

Language of assessment: German and/or English

Assessment will have reference to the contents of modules 10-M-DGIL und 10-M-FTHL

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 Mathematics (2019)