Module description

Module title					Abbreviation
Overview Differential Geometry and Partial Differential Equations				ations	10-M-DGPA-Ü-152-m01
Module coordinator				Module offered by	
Dean of Studies Mathematik (Mathematics)				Institute of Mathematics	
ECTS Method of grading			Only after succ. compl. of module(s)		
12 numerical grade					
Duration		Module level	Other prerequisites		
1 semester undergraduate					
Contents					
Curves in Euclidean spaces, curvature, Frenet equations, local classification, submanifolds (hypersurfaces in particular) in Euclidean spaces, curvature of hypersurfaces, geodesics, isometries, main theorem on local sur- face theory, special classes of surfaces; examples of partial differential equations and partial differential equati- ons of first order, existence and uniqueness theorems, basic equations of mathematical physics, boundary value problems, maximum principle and Dirichlet problem.					
Intended learning outcomes					
The student is acquainted with fundamental concepts and methods in differential geometry and the theory of partial differential equations. He/She is able to relate these concepts with one another, and realises the advan- tages of thinking across the borders of different branches in mathematics.					
Courses (type, number of weekly contact hours, language — if other than German)					
V (4) + Ü (2)					
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) Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be selected as the subject of one examination in the sub-fields Gesamtüberblick (Overview). Language of assessment: German and/or English					
Allocation of places					
Additional information					
Workload					
360 h					
Teaching cycle					
Referred to in LPO I (examination regulations for teaching-degree programmes)					
Module appears in					
Bachelor's degree (1 major) Mathematics (2015)					
Bachelor's degree (1 major) Computational Mathematics (2015) Bachelor's degree (1 major) Mathematics (2022)					

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