TÜRK-ALMAN ÜNİVERSİTESİ
TÜRKISCH-DEUTSCHE UNIVERSITÄT

DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

Course Details					
Code			**Academic Year**		**Semester**
BAU251			2		Spring
Title			**T**	**A**	**L**	**ECTS**
Numerical Methods in Civil Engineering			2	1	2	6

Language	German				
Level	**Undergraduate**	✓	**Graduate**		**Postgraduate**	
Department / Program	Civil Engineering				
Forms of Teaching and Learning	Formel				
Course Type	**Compulsory**		**Elective**	✓	
Objectives	Students learn numerical methods and their application for tasks in civil engineering.				
Content	-Mathematical descriptions of the physical behaviour of structures and natural systems according to examples - Fundamentals of numerical interpolation, numerical differentiation and numerical integration - Geometric and physical approximation with finite elements - Components of a finite element model - Exemplary application to civil engineering tasks				
Prerequisites	None				
Coordinator					
Lecturer(s)					
Assistant(s)					
Work Placement	None				

Recommended or Required Reading	
Books / Lecture Notes	Mathematische Modelle im Bauingenieurwesen: Mit Fallstudien und numerischen Lösungen Gebundene Ausgabe – 7. September 2015von Kerstin Rjasanowa (Autor)
Other Sources	-

Additional Course Material	
Documents	-
Assignments	-
Exams	-

Course Composition

**DEPARTMENT OF CIVIL ENGINEERING
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Mathematics und Basic Sciences		%
Engineering		%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	40
Quiz		
Assignments		
Attendance		
Recitations		
Projects		
Final Exam	1	60
Total		**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	5	70
Self-Study	14	3	42
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	2	10
Recitations			
Laboratory			
Projects			
Final Exam	1	2	15
Total Work Load			**137**
ECTS Points (Total Work Load / Hour)			**6**

Learning Outcomes

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1	Students learn numerical methods and their application for civil engineering problems.
2	They learn the computer-aided description and numerical calculation of the physical properties of structures and systems in nature.
3	They acquire a basic understanding of the mathematical formulation of the laws of behavior and its numerical calculation.
4	They are able to independently solve simple tasks in the fields of numerical interpolation, numerical differentiation and numerical integration.
5	They are able to carry out simple calculations using the finite element method.

Weekly Content

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
1							
2							
3							
4							

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

Compiled by:	
Date of Compilation:	