DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

Course Details				
Code		**Academic Year**		**Semester**
BAU202		2		1
Title		**T**	**A**	**L**	**ECTS**
Structural Analysis I		3	1	1	6

Language	German					
Level	**Undergraduate**	✓	**Graduate**		**Postgraduate**	
Department / Program	Civil Engineering					
Forms of Teaching and Learning	Formal					
Course Type	**Compulsory**	✓	**Elective**			
Objectives	This course aims to equip students with the fundamental principles and working techniques of classical statics and enable them to apply these concepts to the typical calculations of statically determinate bar structures. It seeks to develop students' ability to systematically approach engineering problems by understanding force and equilibrium principles. Additionally, it intends to enhance their engineering skills by utilizing fundamental methods for the analysis and solution of structural systems.					
Content	This course encompasses the definition of essential elements for modeling bar structures and the explanation of the static and geometric properties of support systems. It includes the derivation of fundamental equations under static effects for calculations based on first-degree theory. The analysis of statically determinate bar structures is covered by addressing the principle of structure, the principle of section, and the principles of mechanics, along with methods such as the virtual displacement principle and the virtual force principle. Through these methods, students are expected to determine system conditions and calculate the deformations of statically determinate support systems. Additionally, it incorporates applications for determining force and displacement diagrams.					
Prerequisites	(BAU112)					
Coordinator	Prof.Dr. Murat Hamderi					
Lecturer(s)	Prof.Dr. Murat Hamderi					
Assistant(s)	Research Assist. Ferit Yardımcı					
Work Placement						

Recommended or Required Reading	
Books / Lecture Notes	Dallmann, R. (2020). Baustatik 1: Berechnung statisch bestimmter Tragwerke. Carl Hanser Verlag GmbH Co KG.
Other Sources	Girgin, K., Aksoylu, M. G., Durgun, Y., & Darılmaz, K. (2011). Yapı Statiği, İzostatik Sistemler. Çözümlü Problemler, Birsen Yayınevi, İstanbul.

Additional Course Material	
Documents	Ders Notları
Assignments	

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Exams		
Course Composition		
Mathematics und Basic Sciences		%
Engineering	60	%
Engineering Design	40	%
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	3	42
Self-Study	14	6	84
Assignments	1	10	10
Presentation / Seminar Preparation			
Midterm Exam	1	2	10
Recitations	14	1	14
Laboratory	14	1	14
Projects			
Final Exam	1	2	2
		Total Work Load	**168**
		ECTS Points(Total Work Load / Hour)	**6 ECTS**

Learning Outcomes

1	Students learn the basic principles and techniques of classical statics.

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2	The student learns the static calculations of certain bar structures.
3	Students can make static modeling.
4	The student gains the ability to select the right method for a static calculation, to interpret the results of the calculation and to evaluate critically.

Weekly Content	
1	Basic Principles and Techniques of Classical Statics
2	Statically determinate structures
3	Visual representations of moment, shear force and axial force
4	Statically determined frame structures
5	Displacements in statically determined truss systems using virtual work method
6	Displacements of statically determined beams using virtual work method
7	Displacements in statically determined frames using the virtual work method
8	Midterm Exam
9	Introduction to stiffness method, derivation of equations
10	Introduction to stiffness method, derivation of equations
11	Introduction to stiffness method, derivation of equations
12	Force and displacement calculations by stiffness method in articulated systems
13	Force and displacement calculations by stiffness method in articulated systems
14	Force and displacement calculations by stiffness method in articulated systems
15	Force and displacement calculations by stiffness method in articulated systems
16	Final Exam

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

	P1	P2	P3	P4	P5	P6	P7
1	5	4		1		4	
2	5	4		3		5	
3	5	4		3		5	
4	5	4		1		4	

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

Compiled by:	
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