DEPARTMENT OF CIVIL ENGINEERING

Course Details					
Code			**Academic Year**		**Semester**
BAU 460			4		**W.S-S.S**
Title			**T**	**A**	**L**	**ECTS**
Building Information Modeling			2	2	0	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 teach the theoretical framework, application areas, and technologies related to Building Information Modeling (BIM) in the AEC (Architecture, Engineering, and Construction) sectors. It intends to explain the role of BIM in the building life cycle and its impact on the digital transformation process. Additionally, it aims to ensure comprehension of BIM's fundamental components and functioning.					
Content	- Basics of geometric modeling with parameterized objects - Basics of semantic modeling - Forms of cooperation - Exemplary creation of models - Exemplary evaluation of models					
Prerequisites	-					
Coordinator	Prof.Dr. Murat Hamderi					
Lecturer(s)	Prof. Dr. -Ing. Timo Hartmann					
Assistant(s)						
Work Placement	-					

Recommended or Required Reading	
Books / Lecture Notes	Eastman, C., Paul T., Rafael S., Kathleen L. (2008), BIM Handbook, "A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors," New Jersey, John Wiley & Sons. Eastman, C. (1999), "Building Product Models: Computer Environments Supporting Design and Construction," Boca Raton, CRC Press.
Other Sources	

Additional Course Material	
Documents	
Assignments	
Exams	

Course Composition	

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Mathematics und Basic Sciences		%
Engineering	30	%
Engineering Design	30	%
Social Sciences	15	%
Educational Sciences		%
Natural Sciences	15	%
Health Sciences		%
Expert Knowledge	10	%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	30
Quiz		
Assignments	6	30
Attendance		
Recitations		
Projects		
Final Exam	1	40
Total		**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	2	28
Self-Study	14	5	70
Assignments	6	6	36
Presentation / Seminar Preparation			
Midterm Exam	1	3	3
Recitations			
Laboratory			
Projects			
Final Exam	1	3	3
Total Work Load			**168**
ECTS Points (Total Work Load / Hour)			**6**

Learning Outcomes

1	Students acquire the necessary knowledge and skills related to Building Information Modeling (BIM) in the AEC sectors.
2	Students understand both theoretical and practical aspects of BIM and can effectively use it in construction processes.
3	Students analyze the role of BIM in the building life cycle and its impact on digital transformation.

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Weekly Content	
1	Introduction to BIM
2	Fundamentals and Components of BIM
3	Fundamentals and Components of BIM
4	BIM and Collaborative Design
5	Support Sessions (Turkey)
6	BIM Workflows for Project Management
7	BIM Modeling and Visualization
8	Midterm Exam
9	Visual Programming with Dynamo I
10	Visual Programming with Dynamo II
11	BIM Simulation and Analysis – Energy Simulations and Clash Detection
12	BIM Simulation and Analysis – Energy Simulations and Clash Detection
13	BIM Simulation and Analysis – Energy Simulations and Clash Detection
14	Support Sessions (Turkey)
15	Support Sessions (Turkey)

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

	P1	P2	P3	P4	P5	P6	P7
1	5	5	2	3	3	4	4
2	5	5	2	3	3	4	4
3	5	4	3	4	3	3	4
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Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High						

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