

DEPARTMENT OF CIVIL ENGINEERING

Course Details				
<b>Code</b>		<b>Academic Year</b>		<b>Semester</b>
BAU456		4		Fall
<b>Title</b>		<b>T</b>	<b>A</b>	<b>L</b>
Construction Management II		3	1	1
<b>ECTS</b>		6		
<b>Language</b>	German			
<b>Level</b>	<b>Undergraduate</b>	✓	<b>Graduate</b>	<b>Postgraduate</b>
<b>Department / Program</b>	Civil Engineering			
<b>Forms of Teaching and Learning</b>	Formal			
<b>Course Type</b>	<b>Compulsory</b>		<b>Elective</b>	✓
<b>Objectives</b>	<p>Understanding the basics of construction management and overseeing the project lifecycle as well as the corresponding phases. Comprehending and applying the fundamental principles of project management, including the use of resource planning methods, CPM, PERT, project crashing, and EVA for evaluating project progression.</p>			
<b>Content</b>	<ul style="list-style-type: none"> <li>• Understanding the Fundamentals of Construction Management: To comprehend the principles of construction management, including the different types of construction projects, project execution models, construction contracting models, the sequencing of construction processes, and the interaction between various construction phases.</li> <li>• Knowledge about Project Phases: The students are expected to develop a comprehensive understanding of the project lifecycle and its individual phases, from ideation, planning, and execution, through to project closure and post-project evaluation.</li> <li>• Application of Resource Planning Methods: Students should have the ability to identify, utilize, and optimize methods for planning and controlling resources in projects, including scheduling, cost control, and quality management.</li> <li>• Basic Understanding of Project Management in Construction: Students should develop a basic understanding of the significance and application of project management in construction. They should emphasize the role that scheduling plays in project coordination and control.</li> <li>• Understanding of CPM (Critical Path Method): Students should be able to explain the CPM methodology, including the determination of float, and identification of the critical path in a project.</li> <li>• Application of PERT (Program Evaluation and Review Technique): Students should understand the PERT technique and its application in risk estimation and evaluation. They should be able to create and interpret PERT charts and calculate the expected project timeline considering uncertainties.</li> <li>• Understanding of Crashing: Students should understand the method of crashing, where resources are increased to shorten the project duration. They should be able to evaluate the effects of crashing on costs and workload.</li> <li>• Application of Earned Value Analysis (EVA): Students should understand what EVA is and how it is used to assess project progress and forecast project performance.</li> <li>• The role of formwork systems in construction projects and formwork system selection criteria</li> </ul>			
<b>Prerequisites</b>	"Construction Management I"			

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Coordinator	
Lecturer(s)	Dr.-Eng. Taylan Terzioğlu
Assistant(s)	
Work Placement	

Recommended or Required Reading

Books / Lecture Notes	Grundlagen der Baubetriebslehre Bd. 1-3; Fritz Berner, Bernd Kochendörfer, Rainer Schach, Teubner
Other Sources	

Additional Course Material

Documents	
Assignments	
Exams	

Course Composition

Mathematics und Basic Sciences	25	%
Engineering	25	%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge	50	%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	35
Quiz		
Assignments		
Attendance	1	5
Recitations		
Projects	1	20
Final Exam	1	40
	<b>Total</b>	<b>100</b>

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	+/- 4	60
Self-Study	14	+/- 4	60
Assignments	0	0	0

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Presentation / Seminar Preparation	0	0	0
Midterm Exam	1	1,5	1,5
Recitations	14	+/- 2	30
Laboratory	0	0	0
Projects	0	0	0
Final Exam	1	3,5	3,5
<b>Total Work Load</b>			<b>155</b>
<b>ECTS Points (Total Work Load / Hour)</b>			<b>6</b>

**Learning Outcomes**

1	Fundamentals of the Construction Economy and the Construction Industry
2	Project Participants and Project Life Cycle
3	Introduction to Project Management
4	Knowledge Areas in Project Management
5	Project Management in Construction and Construction Management
6	Project Delivery Methods
7	Construction Contracting Methods
8	Introduction to Scheduling
9	Development of a Network Model
10	Scheduling Technique: Critical Path Method (CPM)
11	Scheduling Technique: Performance Evaluation & Review Technique (PERT)
12	Project Crashing
13	Resource Management in Construction
14	Earned Value Analysis (EVA)
15	The role of Formwork Systems in the Construction Industry
16	Selection Criteria for Formwork Systems in Construction Projects

**Weekly Content**

1	<b>Part 1a:</b> Basics of Construction Economics and Industry <b>Part 1b:</b> Project Participants and Project Chronology
2	<b>Part 2a:</b> Introduction to Project Management <b>Part 2b:</b> Knowledge Areas in Project Management
3	<b>Part 3a:</b> Project Management in Construction and Construction Management <b>Part 3b:</b> Project Delivery Methods
4	<b>Part 4a:</b> Construction Contracting Models <b>Part 4b:</b> Project Scheduling
5	<b>Part 5a:</b> Development of a Network Model <b>Part 5b:</b> Scheduling Technique: Critical Path Method (CPM)

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6	<b>Part 6:</b> Scheduling Technique: Critical Path Method (CPM)-Applied Examples
7	<b>Part 7a:</b> Performance Evaluation & Review Technique (PERT) <b>Part 7b:</b> Performance Evaluation & Review Technique (PERT)- Applied Examples
8	<b>Midterm exam – 90 Min. (Written)</b>
9	<b>Part 9:</b> Project Crashing
10	<b>Part 10:</b> Crashing – Applied Examples
11	<b>Part 11a:</b> Resource Management <b>Part 11b:</b> Resource Management - Applied Examples
12	<b>Part 12a:</b> Earned Value Analysis (EVA) <b>Part 12b:</b> Earned Value Analysis (EVA) - Applied Examples
13	<b>Part 13a:</b> The Role of Formwork Systems in the Construction Industry <b>Part 13b:</b> Selection Criteria for Formwork Systems in Construction Projects
14	Final Exam Preparation
15	<b>Final Examination (FE) – 210 Min. (Written)</b>

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

	P1	P2	P3	P4	P5	P6	P7
1	3	2	4	5	5	4	5
2	3	2	5	5	5	5	5
3	3	2	5	5	5	5	4
4	3	2	4	5	5	4	5
5	3	2	4	4	4	4	4
6	3	2	5	5	5	5	5
7	3	2	4	4	4	4	4
8	3	2	5	5	5	5	5
9	3	2	5	5	4	5	5
10	3	2	5	4	5	5	4
11	3	2	5	5	5	5	5
12	3	2	5	5	5	5	5
13	3	2	4	4	4	4	4
14	3	2	5	5	5	5	5
15	3	2	5	4	4	5	4
16	3	2	5	5	4	5	4

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

<https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=en&curSunit=5728>

**Compiled by:** Dr.-Eng. Taylan Terzioğlu

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