BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS
FACULTY OF ARCHITECTURE
DEPARTMENT OF CONSTRUCTION TECHNOLOGY AND MANAGEMENT

Construction Management
BMEEPEKAT41
Course Description

BUTE DCT&M	
1. Course title, ID	Construction Management, BMEEPEKAT41
2. Language	English
3. Course description, aims and deliveries	Complex themes of course "Construction Management" embrace basics of Scheduling- (from steps of WBS construction to Network Technics), Equipment selection and application, and principles of Site-layout Design and of on-site Health and Safety Management. Students will understand basic steps of planning and preparing on-site works, and principles of sharing authorities and responsibilities of collaborating parties of construction projects. They learn to read and prepare time- and resource estimates and basic documents of on-site organization. They also get an overview of aims and considerations of preliminary site-surveys, and they get familiar with technical aspects of selecting heavy construction machines and equipment and of estimating their performance. Understanding and knowledge of students is proved during studio works and is evaluated on basis of results of 3 mid-semester tests.
4. Type (obligatory, elective, special)	Obligatory, general
5. Lecture/Studio/exam or mid-sem./Credit	2/1/m/3
6. Preliminary studies (ID)	EOEMAT44 EOGMAT42
7. Preferred semester	6th
8. Available in each semester	yes
9. Tutor(s)	Ph.D. Zoltán András Vattai
10a. Minimum attendance of lectures (%)	At least 2/3 (66%) of lectures must be attended
10b. Minimum attendance of studio works (%)	At least 2/3 (66%) of studio works must be attended. More than 1/3 of lectures or of studio works missed results in denial of final signature, so attendance of the course cannot be recognized.
10c. Checking attendance	Roll-call
11. Conditions of final signature (mid-semester test, individual project, experiment)	• all the 3 tests written successfully • regular attendance of lectures and studio works
12a. Mid-semester test(s), schedule	3 mid-semester tests, scheduled on weeks: 7 (basics of scheduling), 12 (construction equipment) and 15 (site-layout design and on-site health and safety)
12b. Re-take test(s), schedule	Re-take tests scheduled on week 16 (maximum 2 of the 3 tests can be re-taken)
13. Individual project(s)	-
14. Type of exam	-
15. Grading policy	Each test is evaluated individually based on pointing system. 0-40% of maximum points – “failed (1)”; 41-55% of maximum points – “passed (2)” 56-70% of maximum points – “satisfactory (3)” 71-85% of maximum points – “good (4)” 86-100% of maximum points – “excellent (5)”. Final mark calculated on the basis of mean-value of the results of the 3 tests.
16. Tools allowed at exam/mid-semester test(s)	pen/pencil, eraser, ruler, calculator
17. Readings, supporting material	Useful readings and supporting material listed on homepage of the subject (http://www.ekt.bme.hu/CM-BSC-MSC/CM-BSC-MSC.htm)
18. Estimated study-load (hours)	Contact hours (lectures + studio works + tests) : 42 hours Preparation for the tests: 48 hours

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Weekly Breakdown of Topics Discussed

Week		Lecture, Studio work	Topics
1	+	Lecture	Cooperation in construction, roles of collaborating parties, sharing authorities and responsibilities, procurement systems, basic data of construction contracts
		Studio work	Basics of scheduling, Pre-tender report, Work Breakdown Structure, representing time plans, Gantt Chart, Linear Schedules, scheduling activities relative to each other
2	#	Lecture	Reading and preparing time plans, technical samples
3	+	Lecture	Adding time- and resource data to schedules, time- and resource estimates establishing and applying standards, capacity-duration inter-relations.
		Studio work	Developing time-, resource- and cost estimates
4	#	Lecture	Improving performances, the Duration Paradox, synchronizing resources, assembly-belt system production/construction, effect of sequencing
5	+	Lecture	Basics terms of Graph Techniques, overviewing history of Network Time Modelling Techniques (CPM^{time}, CPM^{cost}, $PERT^{time}$, MPM/PDM), the Floyd-Warshall Algorithm
		Studio work	MPM technique in focus, reading relations, calculating MPM/PDM time models
6	#	Lecture	Constructing an MPM/PDM time model of a construction work (small bridge)
7	+	Lecture	**First** mid-semester test (Basics of scheduling)
		Studio work	Heavy Construction, classes and classification of construction equipment, consequences of improper applications, case studies (videos)
8	#	Lecture	Machines of Earthworks, classification, characteristics of machines, typical applications, case studies (videos)
9	+	Lecture	Machines of Concrete works (including preparation of aggregates), classification, characteristics of machines, typical applications, case studies (videos)
		Studio work	Machines of Lifting and Transporting (including hoists and mobile platforms), classification, characteristics of machines, typical applications, case studies (videos)
10	#	Lecture	Estimating performances, assembling machine series/plants (earthworks, concreting)
11			Spring Holiday
12	+	Lecture	**Second** mid-semester test (Construction equipment)
		Studio work	Holiday (1st of May)
13	#	Lecture	Principles of on-site health and safety, the role of Health & Safety Coordinator, on-site measures, solutions and practices of Health and Safety Management
14	+	Lecture	Site-layout design, basic consideration and components of site-layout design (site map, arrangement plan, detailed site-layout design, phase drawings, $4D^{+}$ modelling)
		Studio work	Developing a site-layout design plan (phased arrangement plan)
15	#	Lecture	**Third** mid-semester test (Site-layout design, On-site health and safety)
16			**Retake** test(s) (maximum two of the three tests can be retaken)

Budapest, 10.02.2025

Ph.D. Zoltán András Vattai
Course leader / Tutor