



HASAN KALYONCU UNIVERSITY
Faculty of Engineering
Course Description Form

COURSE: Engineering Design					
CODE: CE356		SEMESTER: SPRING			
LANGUAGE: ENGLISH		TYPE: COMPULSORY			
PRE-REQUISITES: - CO-REQUISITES: -		THEORY	PRACTICAL	CREDIT	ECTS
WEEKLY HOURS: 3		1	2	2	3

CONTENT OF THE COURSE:

The major focus of this course is to expose students to design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. This course gives students the opportunity to develop skills and understanding of course concepts through activity, project and problem-based learning.

OBJECTIVE OF THE COURSE:

To enable students to employ engineering and scientific concepts in the solution of design problems. Students will be able to develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges causing difficulties throughout the design process. Students will also learn how to document their work, and communicate their solutions to their peers and members of the professional community.

WEEKLY SCHEDULE

Week	Topics
1	Introduction to BIM (Building information modelling)
2	Building Information Modelling and Beyond 3D Revit Tutorial - Computer Lab
3	BIM Tools and Process Improvement Revit Tutorial - Computer Lab
4	BIM and Lifecycle Management Revit Tutorial - Computer Lab
5	BIM Implementation in Companies Computer Lab: Case study project building design and modelling in Revit
6	BIM for Performance based Design Case study project building design and modelling in Revit
7	Developing design models embedding information as a response to project brief
8	Midterm week
9	Progress on the design project: building design and modelling in Revit
10	Progress on the design project: building design and modelling in Revit
11	Progress on the design project: building design and modelling in Revit
12	Progress on the design project: building design and modelling in Revit
13	Progress on the design project: building design and modelling in Revit
14	Student Design Project Submission and presentation

- **TEXTBOOK:** Arayici, Y. (2015), “Building Information Modelling”, September 2015, Bookboon publisher, ISBN: 978870310986

REFERENCE BOOKS

- Lock, D. (2007) Project Management, 9th edn., Blackwells
- West, M.A. (2004) Effective Teamwork, 2nd edn., Blackwells
- Rose, P., Marshall, L. & Rowland, F. (2006) A Guide to Learning Independently, OU Press
- Arayici, Y., et al (2017), Heritage Building Information Modelling, Taylor & Francis, UK
- Water, M. & Crook, G. (2005) Management and Business Skills in the Built Environment, Spon Press

Eastman, C., Teicholz, P., Sacks, R. & Liston, K. (2008) BIM Handbook: A Guide to Building Information Modelling for Owners, Managers, Designers, Engineers and Contractors, Wiley

EVALUATION SYSTEM:		
IN-TERM STUDIES	QUANTITY	PERCENTAGE (%)
Midterm Exam	1	40
Homework		
Laboratory works		
Quiz		
Final Exam	1	60
TOTAL		100
CONTRIBUTION OF INTERM STUDIES TO OVERALL GRADE		40
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		60
TOTAL		100

COURSE CATEGORY:	PERCENTAGE (%)
Mathematics and Basic Sciences	30
Engineering	40
Engineering Design	30
Social Sciences	

TABLE OF ECTS / WORKLOAD:			
Activities	QUANTITY	Duration (Hour)	Total Workload
Course Duration	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	3	42
Laboratory works	0	0	0
Mid-term	1	2	2

Final examination	1	2	2
Homework	0	0	0
Quiz	0	0	0
Total Work Load			85
Total Work Load / 30			2,8
ECTS Credit of the Course			3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
LO1	0	0	3	2	0	2	0	0	0	0	0
LO2	0	0	3	2	0	2	0	0	0	0	0
LO3	0	0	3	2	0	2	0	0	0	0	0
LO4	0	0	3	2	0	2	0	0	0	0	0
LO5	0	0	3	2	0	2	0	0	0	0	0
LO6	0	0	3	2	0	2	0	0	0	0	0
PO: Program Outcomes LO: Learning Outcomes Values: 0: None 1: Low 2: Medium 3: High											

INSTRUCTOR(S):	Prof. Dr. Yusuf Arayici
FORM PREPARATION DATE:	22.05.2019

LEARNING OUTCOMES OF THE COURSE:	PROGRAM OUTCOMES:
<p>LO1: To be able to establish the relationship between project technical details and design concepts.</p> <p>LO2: To be able to design light, acoustic and comfort areas based on sustainable design principles.</p> <p>LO3: Ability to present comfort space needs for building users in the designed model</p> <p>LO4: Ability to integrate design concepts into field application</p> <p>LO5: Analyze the needs of building users and offer solutions</p> <p>LO6: Ability to select more sustainable materials and products for designs that meet the desired criteria</p>	<p>PO1: Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.</p> <p>PO2: Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.</p> <p>PO3: Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.</p> <p>PO4: Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in engineering practice; ability to employ information technologies effectively.</p> <p>PO5: Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions.</p> <p>PO6: Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.</p>

	<p>PO7: Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language; ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.</p> <p>PO8: Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.</p> <p>PO9: Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice.</p> <p>PO10: Knowledge about business life practices such as project management, risk management, and change management; awareness in entrepreneurship, innovation; knowledge about sustainable development.</p> <p>PO11: Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions.</p>
--	--