

**School of Fine Arts Design and Architecture / Architecture**

**2023 - 2024 Academic Year**

**IT BASED DESIGN and MANAGEMENT I**

**Syllabus**

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
IT BASED DESIGN and MANAGEMENT I	MIM2115119	Fall Semester	2+2	3	4
<b>Prerequisites Courses</b>					
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	Turkish				
<b>Course Level</b>	First Cycle (Bachelor's Degree)				
<b>Course Type</b>	Required				
<b>Course Coordinator</b>	Assist.Prof. Mustafa Adil KASAPSEÇKİN				
<b>Name of Lecturer(s)</b>	Assist.Prof. Mustafa Adil KASAPSEÇKİN, Lect. Fatma Tuğba VERDİL, Lect. Yavuz CENGİZ				
<b>Assistant(s)</b>					
<b>Aim</b>	It is aimed to provide the theoretical and practical knowledge required to realize design, project planning and construction management issues in a digital environment.				
<b>Course Content</b>	<p>This course contains; Rhinoceros: Interface introduction, coordinate systems, toolbars, construction plane, creation of 2D geometric elements, selection actions Revit: The emergence, definition and development process of BIM concept The construction industry needs BIM? Why use BIM? What is BIM?, How does BIM change the construction industry?, Basic features of BIM technology Overview of BIM-based software, basic concepts related to BIM, ND BIM, conflict control, interoperability, virtual reality, energy simulations,Rhinoceros: Interface introduction, coordinate systems, toolbars, construction plane, creation of 2D geometric elements, selection actions Revit: The emergence, definition and development process of BIM concept The construction industry needs BIM? Why use BIM? What is BIM?, How does BIM change the construction industry?, Basic features of BIM technology Overview of BIM-based software, basic concepts related to BIM, ND BIM, conflict control, interoperability, virtual reality, energy simulations,Rhinoceros: 2D geometric elements and arrangements, sample plan creation-1, layers, blocks, sample plan creation-2 and print settings Revit: Introduction to BIM Autodesk Revit interface and introduction of the program, Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 1: Wall, door, window,Rhinoceros: 2D geometric elements and arrangements, sample plan creation-1, layers, blocks, sample plan creation-2 and print settings Revit: Introduction to BIM Autodesk Revit interface and introduction of the program, Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 1: Wall, door, window,Rhinoceros: Creation of 3D geometric elements, 3D geometric elements and arrangements Revit: Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 2: Wall, door, window, Creating topography, transferring existing topography data to Revit, "building pad and split" concepts,Rhinoceros: Creation of 3D geometric elements, 3D geometric elements and arrangements Revit: Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 2: Wall, door, window, Creating topography, transferring existing topography data to Revit, "building pad and split" concepts,Rhinoceros: Overview Revit: Overview,Rhinoceros: Overview Revit: Overview,Rhinoceros: Gumball usage and sample model, Sample structure modeling-1 Lumion: Interface introduction and transfer of the 3D model to Lumion software Revit: Floor copying, architectural component copying and building mass creation, using the "by footprint" command; Roof, floor and ceiling modeling, Stair modeling logic and stair components,Rhinoceros: Gumball usage and sample model. Sample structure modeling-1 Lumion: Interface introduction and transfer of the 3D model to Lumion software Revit: Floor copying, architectural component copying and building mass creation, using the "by footprint" command; Roof, floor and ceiling modeling, Stair modeling logic and stair components,Lumion: Material and lighting settings, Render settings and obtaining final images Revit: Modeling structural elements (column, beam, floor), section box, sheet creation, shop drawing creation, detail drawing sheets creation,Lumion: Material and lighting settings, Render settings and obtaining final images Revit: Modeling structural elements (column, beam, floor), section box, sheet creation, shop drawing creation, detail drawing sheets creation,Lumion: Animation settings and creating sample animations Photoshop: Editing the image after rendering via Photoshop Revit: Modeling the building technology sheet as BIM, Modeling wall-floor connection details,Lumion: Animation settings and creating sample animations Photoshop: Editing the image after rendering via Photoshop Revit: Modeling the building technology sheet as BIM, Modeling wall-floor connection details.</p>				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
1. Uses design methods in a digital environment			16, 37, 8, 9	A, E, F	
2. Gains digital representation skills in design			16, 37, 8, 9	A, E, F	
3. Simulates the predicted behavior of various design systems			16, 37, 8, 9	A, E, F	
4. Uses digital technologies in production			16, 37, 8, 9	A, E, F	
<b>Teaching Methods</b>	16: Question - Answer Technique, 37: Computer-Internet Supported Instruction, 8: Flipped Classroom Learning, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam, E: Homework, F: Project Task				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	Rhinoceros: Interface introduction, coordinate systems, toolbars, construction plane, creation of 2D geometric elements, selection actions Revit: The emergence, definition and development process of BIM concept The construction industry needs BIM? Why use BIM? What is BIM?, How does BIM change the construction industry?, Basic features of BIM technology Overview of BIM-based software, basic concepts related to BIM, ND BIM, conflict control, interoperability, virtual reality, energy simulations				
2	Rhinoceros: Interface introduction, coordinate systems, toolbars, construction plane, creation of 2D geometric elements, selection actions Revit: The emergence, definition and development process of BIM concept The construction industry needs BIM? Why use BIM? What is BIM?, How does BIM change the construction industry?, Basic features of BIM technology Overview of BIM-based software, basic concepts related to BIM, ND BIM, conflict control, interoperability, virtual reality, energy simulations				
3	Rhinoceros: 2D geometric elements and arrangements, sample plan creation-1, layers, blocks, sample plan creation-2 and print settings Revit: Introduction to BIM Autodesk Revit interface and introduction of the program, Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 1: Wall, door, window				

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<b>Lecture Schedule</b>		
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4	Rhinoceros: 2D geometric elements and arrangements, sample plan creation-1, layers, blocks, sample plan creation-2 and print settings Revit: Introduction to BIM Autodesk Revit interface and introduction of the program, Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 1: Wall, door, window	
5	Rhinoceros: Creation of 3D geometric elements, 3D geometric elements and arrangements Revit: Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 2: Wall, door, window, Creating topography, transferring existing topography data to Revit, "building pad and split" concepts	
6	Rhinoceros: Creation of 3D geometric elements, 3D geometric elements and arrangements Revit: Parametric modeling concept, "family" concept in Revit Modeling and detailing of architectural building elements 2: Wall, door, window, Creating topography, transferring existing topography data to Revit, "building pad and split" concepts	
7	Rhinoceros: Overview Revit: Overview	
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9	Rhinoceros: Gumball usage and sample model, Sample structure modeling-1 Lumion: Interface introduction and transfer of the 3D model to Lumion software Revit: Floor copying, architectural component copying and building mass creation, using the "by footprint" command; Roof, floor and ceiling modeling, Stair modeling logic and stair components	
10	Rhinoceros: Gumball usage and sample model, Sample structure modeling-1 Lumion: Interface introduction and transfer of the 3D model to Lumion software Revit: Floor copying, architectural component copying and building mass creation, using the "by footprint" command; Roof, floor and ceiling modeling, Stair modeling logic and stair components	
11	Lumion: Material and lighting settings, Render settings and obtaining final images Revit: Modeling structural elements (column, beam, floor), section box, sheet creation, shop drawing creation, detail drawing sheets creation	
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13	Lumion: Animation settings and creating sample animations Photoshop: Editing the image after rendering via Photoshop Revit: Modeling the building technology sheet as BIM, Modeling wall-floor connection details	
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<b>Evaluation Methods</b>		<b>Weight(%)</b>
Midterm Exam		50
General Exam		50

<b>Resources</b>
1- KANBUR, N, 2012, 3D Studio Max Görseleştirme ve Modelleme 2- TURHAN, B Y, 2012, 3D Studio Max Modelleme ve 3D Studio 3- YARWOOD, A., 2007, Introduction to AutoCAD 2008 electronic resource: 2D and 3D design, Amsterdam; Boston; London: Newness. 4- BAYKAL, B., Öğütü, M., 2010, AutoCAD 2010, Alfa Yayınları, İstanbul