

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

**2023 - 2024 Academic Year**

**IT BASED DESIGN and MANAGEMENT II**

**Syllabus**

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
IT BASED DESIGN and MANAGEMENT II	MIM2215123	Spring Semester	2+2	3	4
<b>Prerequisites Courses</b>	TASARIM VE YÖNETİMDE BİLİŞİM I				
<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				
<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; Rhino Grasshopper: Parameter concept, Grasshopper interface introduction, introduction to point and line components, Introduction to components, Applied Revolve surface explanation 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, Rhino Grasshopper: Parameter concept, Grasshopper interface introduction, introduction to point and line components, Introduction to components, Applied Revolve surface explanation 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, "Rhino Grasshopper: Slider and point oriented application, Point creation methods-1 Revit: Introduction to 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", "Rhino Grasshopper: Slider and point oriented application, Point creation methods-1 Revit: Introduction to 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", Rhino Grasshopper: Point creation methods-2, Curve creation methods-1 Revit: Modeling and detailing of architectural building elements 2: Stairs, stair parts, floors, Modeling and detailing of architectural building elements 3: Roofs, ceilings, ramps, Rhino Grasshopper: Point creation methods-2, Curve creation methods-1 Revit: Modeling and detailing of architectural building elements 2: Stairs, stair parts, floors, Modeling and detailing of architectural building elements 3: Roofs, ceilings, ramps, Rhinoceros: Overview Revit: Overview, Rhinoceros: Overview Revit: Overview, Rhino Grasshopper: Surface and solid creation methods-1, Surface and solid creation methods-2 Revit: Section box, sheet creation, shop drawing creation, detail drawing sheets creation, "BIM examples from around the world" group homework presentations, Rhino Grasshopper: Surface and solid creation methods-1, Surface and solid creation methods-2 Revit: Section box, sheet creation, shop drawing creation, detail drawing sheets creation, "BIM examples from around the world" group homework presentations, Rhino Grasshopper: Surface and solid creation methods-3, Creating Fractal geometries Revit: "BIM examples from around the world" group homework presentations, selection and assignment of materials to building elements, use of 2D, 3D cameras, Rhino Grasshopper: Surface and solid creation methods-3, Creating Fractal geometries Revit: "BIM examples from around the world" group homework presentations, selection and assignment of materials to building elements, use of 2D, 3D cameras, Rhino Grasshopper: Various applications with Kangaroo-1, Various applications with Kangaroo-2, Interactive modeling with Firefly Revit: Term project evaluation 1, parametric and unique modeling technique using "Revit family", Term project evaluation 1, Rhino Grasshopper: Various applications with Kangaroo-1, Various applications with Kangaroo-2, Interactive modeling with Firefly Revit: Term project evaluation 1, parametric and unique modeling technique using "Revit family", Term project evaluation 1.</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	Rhino Grasshopper: Parameter concept, Grasshopper interface introduction, introduction to point and line components, Introduction to components, Applied Revolve surface explanation 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	Rhino Grasshopper: Parameter concept, Grasshopper interface introduction, introduction to point and line components, Introduction to components, Applied Revolve surface explanation 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	"Rhino Grasshopper: Slider and point oriented application, Point creation methods-1 Revit: Introduction to 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"				
4	"Rhino Grasshopper: Slider and point oriented application, Point creation methods-1 Revit: Introduction to 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"				

Lecture Schedule		
Sequenc e	Topics	Preliminary Preparation
5	Rhino Grasshopper: Point creation methods-2, Curve creation methods-1 Revit: Modeling and detailing of architectural building elements 2: Stairs, stair parts, floors, Modeling and detailing of architectural building elements 3: Roofs, ceilings, ramps	
6	Rhino Grasshopper: Point creation methods-2, Curve creation methods-1 Revit: Modeling and detailing of architectural building elements 2: Stairs, stair parts, floors, Modeling and detailing of architectural building elements 3: Roofs, ceilings, ramps	
7	Rhinoceros: Overview Revit: Overview	
8	Rhinoceros: Overview Revit: Overview	
9	Rhino Grasshopper: Surface and solid creation methods-1, Surface and solid creation methods-2 Revit: Section box, sheet creation, shop drawing creation, detail drawing sheets creation, "BIM examples from around the world" group homework presentations	
10	Rhino Grasshopper: Surface and solid creation methods-1, Surface and solid creation methods-2 Revit: Section box, sheet creation, shop drawing creation, detail drawing sheets creation, "BIM examples from around the world" group homework presentations	
11	Rhino Grasshopper: Surface and solid creation methods-3, Creating Fractal geometries Revit: "BIM examples from around the world" group homework presentations, selection and assignment of materials to building elements, use of 2D, 3D cameras	
12	Rhino Grasshopper: Surface and solid creation methods-3, Creating Fractal geometries Revit: "BIM examples from around the world" group homework presentations, selection and assignment of materials to building elements, use of 2D, 3D cameras	
13	Rhino Grasshopper: Various applications with Kangaroo-1, Various applications with Kangaroo-2, Interactive modeling with Firefly Revit: Term project evaluation 1, parametric and unique modeling technique using "Revit family", Term project evaluation 1	
14	Rhino Grasshopper: Various applications with Kangaroo-1, Various applications with Kangaroo-2, Interactive modeling with Firefly Revit: Term project evaluation 1, parametric and unique modeling technique using "Revit family", Term project evaluation 1	
Evaluation Methods		Weight(%)
Midterm Exam		50
General Exam		50

Resources
Türkmenoğlu Berkan, Saliha; Rhinoceros 4 ile Modelleme. BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors, Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston (2011-second edition) The Impact of Building Information Modelling, Ray Crotty (2011) BIM Project execution planning, John Messner (2008) Mastering Revit Revit Suite McGraw-Hill, 2008. Building Information Modelling (BIM). Transforming Design and Construction to Achieve Greater Industry Productivity. McGraw-Hill, 2009. The Business Value Of BIM. Getting Building Information Modeling to the Bottom Line. BIM Content Development: Standards, Strategies, and Best Practices, Robert S. Weygant (2011) <a href="https://redshift.autodesk.com/">https://redshift.autodesk.com/</a> <a href="https://academy.autodesk.com/curriculum">https://academy.autodesk.com/curriculum</a> <a href="http://bimnewworld.blogspot.com.tr/">http://bimnewworld.blogspot.com.tr/</a> <a href="http://www.bimjournal.com/">http://www.bimjournal.com/</a> <a href="http://www.asce.org/">http://www.asce.org/</a> <a href="http://www.riba.co.uk/">http://www.riba.co.uk/</a> • <a href="http://www.buildingsmart.org">http://www.buildingsmart.org</a>