OSTIM TECHNICAL UNIVERSITY
FACULTY OF ECONOMICS AND ADMINISTRATIVE SCIENCES
MANAGEMENT INFORMATION SYSTEMS DEPARTMENT
COURSE SYLLABUS FORM

MIS 307 Systems Analysis and Design							
Course Name	**Course Code**	**Period**	**Hours**	**Application**	**Laboratory**	**Credit**	**ECTS**
Systems Analysis and Design	MIS 307	1	3	0	0	3	6

Language of Instruction	English
Course Status	Compulsory
Course Level	Bachelor
Learning and Teaching Techniques of the Course	Lecture, Question-Answer, Problem Solving

Course Objective

Introduces theory and practice of systems analysis and design. Topics include determining business requirements, documenting organizational processes, analyzing information flows, and reengineering/designing information systems. Team project required.

Learning Outcomes

The students who succeeded in this course will be able to;

1. Explain system analysis fundamentals.
2. Comprehend the fundamentals of three development methodologies: the systems development life cycle (SDLC), the agile approach including Scrum, and object-oriented systems analysis and design.
3. Understand that organizations are systems and should be analyzed using systems perspective.
4. Write an effective systems proposal, concentrating on both content and design.
5. Execute information gathering methods
6. Understand Scrum as an agile method to improve development of complex projects.
7. Master on the movement of data and designing effective input and output
8. Explain database concepts.
9. Understand Human–Computer Interaction and UX Design

Course Outline

Part I (Chapters 1–3) stresses the basics students need to know about what an analyst does and introduces the three main methodologies of the systems development life cycle (SDLC), agile approaches, and object-oriented analysis with universal modeling language (UML), along with reasons and situations for when to use them. Part II (Chapters 4–6) emphasizes the use of systematic and structured methodologies for performing information requirements analysis. Attention to analysis helps analysts ensure that they

are addressing the correct problem before designing a system. Part III (Chapters 7–10) details the analysis process. It builds on the previous two parts to move students into analysis of data flows as well as structured and semi structured decisions. It provides step-by-step details on how to use structured techniques to draw data flow diagrams (DFDs). Part IV (Chapters 11–14) covers the essentials of design. It begins with designing output because many practitioners believe systems to be output driven. The design of Web-based forms is covered in detail. Particular attention is paid to relating output method to content, the effect of output on users, and designing good forms and screens.

Weekly Topics and Related Preparation Studies		
Weeks	**Topics**	**Preparation Studies**
1	Course Introduction **Ch-1:** Systems, Roles, and Development Methodologies	1. Need for Systems Analysis and Design 2. The Systems Development Life Cycle 3. The Agile Approach 4. Object-Oriented Systems Analysis and Design
2	**Ch-2:** Understanding and Modeling Organizational Systems	– Organizations as Systems, Depicting Systems Graphically – Use Case Modeling – Levels of Management, Organizational Culture
3	**Ch-3:** Project Management	– Project Initiation, Determining Feasibility – Ascertaining Hardware and Software Needs – Identifying, Forecasting, and Comparing Costs and Benefits – Managing Time and Activities, Project Scheduling – Controlling a Project, Managing the Project Team – The Systems Proposal
4	**Ch-4**: Information Gathering: Interactive Methods	– Interviewing, Listening to Stories, – Joint Application Design, – Using Questionnaires
5	**Ch-5:** Information Gathering: Unobtrusive Methods	– Sampling, Analyzing Quantitative Documents – Analyzing Qualitative Documents, Using Text Analytics – Observing a Decision Maker's Behavior – Observing the Physical Environment
6	**Ch-6:** Agile Modeling, Prototyping, and Scrum	– Prototyping, Agile Modeling, Scrum – DevOps: A Cultural Shift for App Development – Comparing Agile Modeling and Structured Methods
7	**Ch-7:** Using Data Flow Diagrams	– The Data Flow Approach to Human Requirements Determination – Developing Data Flow Diagrams – Logical and Physical Data Flow Diagrams – A Data Flow Diagram Example – Partitioning Websites – Communicating Using Data Flow Diagrams
8	**MIDTERM EXAM**	
9	**Ch-8:** Analyzing Systems Using Data Dictionaries	– The Data Dictionary – The Data Repository – Creating a Data Dictionary

10	**Ch-9:** Process Specifications and Structured Decisions	– Overview of Process Specifications, Structured English – Decision Tables, Decision Trees – Choosing a Structured Decision Analysis Technique
11	**Ch-10:** Object-Oriented Systems Analysis and Design Using UML	– Object-Oriented Concepts, CRC Cards and Object Think – Unified Modeling Language (UML) Concepts and Diagrams – Use Case Modeling, Activity Diagrams – Sequence and Communication Diagrams – Class Diagrams, Enhancing Sequence Diagrams – Enhancing Class Diagrams, Statechart Diagrams – Packages and Other UML Artifacts
12	**Ch-11:** Designing Effective Output	– Output Design Objectives – Relating Output Content to Output Method – Realizing How Output Bias Affects Users – Designing Printed Output, – Designing Output for Displays – Designing a Website, Web 2.0 Technologies – Social Media Design, – Designing Apps for Smartphones and Tablets – Output Production and XML
13	**Ch-12:** Designing Effective Input	– Good Form Design – Good Display and Web Forms Design – Website Design
14	**Ch-13:** Designing Databases	– Databases, Normalization – Guidelines for Master File/Database Relation Design – Making Use of a Database, Denormalization – Data Warehouses, Business Intelligence (BI), Data Analytics, – Blockchains
15	Human–Computer Interaction and UX Design	– Understanding Human–Computer Interaction – Usability, Types of User Interface, UX Design, – Designing Interfaces for Smartphones and Tablets – Design for Intelligent Personal Assistants – Designing for Virtual Reality and Augmented Reality – Guidelines for Dialogue Design, Feedback for Users, – Special Design Considerations for Ecommerce
16	**FINAL EXAM**	

Textbook(s)/References/Materials:
Textbook: Kendall K.E. & Kendall J.E. (2020). Systems Analysis and Design. 10th Edt, Pearson.
Supplementary References: Tilley, S. (2019). Systems Analysis and Design. 12th Edt. Cengage Learning.
Other Materials: Whitten, J. L. i Bentley, LD (2007): Systems Analysis and Design Methods.7th Edt. Mc Graw-Hill

Assessment		
Studies	**Number**	**Contribution margin (%)**
Attendance		
Lab		
Class participation and performance	1	10
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical	5	10
Homework		
Presentation		
Projects		
Report		
Seminar		
Midterm Exam/Midterm Jury	**1**	**30**
General Exam / Final Jury	**1**	**50**
Total		**100**
Success Grade Contribution of Semester Studies		**50**
Success Grade Contribution of End of Term		**50**
Total		**100**

ECTS / Workload Table			
Activities	**Number**	**Duration (Hours)**	**Total Workload**
Course hours (Including the exam week): 16 x total course hours)	16	3	48
Laboratory			
Application			
Course-Specific Internship (if any)			
Field Study			
Study Time Out of Class	16	3	48
Presentation / Seminar Preparation			
Projects			
Reports			
Homework	16	1	16
Quizzes / Studio Review	5	1	5
Preparation Time for Midterm Exams / Midterm Jury	1	20	20
Preparation Period for the Final Exam / General Jury	1	40	40
Total Workload	**(197/30 = 5,90)**		**177**

Course' Contribution Level to Learning Outcomes						
Nu	**Learning Outcomes**	**Contribution Level**				
		1	**2**	**3**	**4**	**5**
LO1	Explain system analysis fundamentals.					X
LO2	Comprehend the fundamentals of three development methodologies: the systems development life cycle (SDLC), the agile approach including Scrum, and object-oriented systems analysis and design.					X
LO3	Understand that organizations are systems and should be analyzed using systems perspective.					X
LO4	Write an effective systems proposal, concentrating on both content and design.					X
LO5	Execute information gathering methods.					X
LO6	Understand Scrum as an agile method to improve development of complex projects.					X
LO7	Master on the movement of data and designing effective input and output.					X
LO8	Explain database concepts.					X
LO9	Understand Human–Computer Interaction and UX Design.					X

	Relationship Between Course Learning Outcomes and Program Competencies (Department of Management Information Systems)										
Nu	Program Competencies	Learning Outcomes									Total Effect (1-5)
		LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	
1	Recognize and distinguish the basic concepts such as data, information, and knowledge in the field of Management Information Systems and know the processes to be followed for data acquisition, storage, updating, and security.	x			x	x		x	x	x	5
2	Develop and manage databases suitable for collecting, storing, and updating data.			x	x				x		4
3	As a result of his/her ability to think algorithmically, and easily find solutions to problems concerning basic business functions.		x	x		x	x	x			5
4	Learn programming logic, and have information about current programming languages.			x					x		4
5	Be able to use up-to-date programming languages.		x	x		x					5
6	Be able to take part in teamwork or lead a team using knowledge of project management processes.	x			x		x				5
7	Know ethical and legal rules, and use professional field knowledge within the scope of ethical and legal rules.										
8	Know the fundamental areas of business administration namely management and organization, production, finance, marketing, numerical methods, accounting, etc., and have the knowledge and skills to work in-depth in at least one of them.										
9	Be able to solve the problems encountered in the field of internet programming by designing web applications.			x		x	x				5
10	Develop and manage logistics and supply chain management activities					x	x				5
11	Adapt his/her theoretical knowledge and the experience he/she will gain through practice at the departments of businesses such					x		x	x	x	5

	as information technologies, R&D, and management to real life.										
12	Be able to develop strategies that will provide a competitive advantage with his/her advanced knowledge of management strategies and management functions.										
13	Develop a business idea, commercialize the business idea, and design and manage his/her venture using entrepreneurial knowledge.										
14	By using English effectively, they can follow, read, write, speak and communicate universal information in the field of management information systems in a foreign language with professional competence.										
Total Effect											**43**

Policies and Procedures
Web page: https://www.ostimteknik.edu.tr/management-information-systems-english-1241/915
Exams: The exams aim at assessing various dimensions of learning: knowledge of concepts and theories and the ability to apply this knowledge to real-world phenomena, through analyzing the situation, distinguishing problems, and suggesting solutions. The written exams can be of two types, ie. open-ended questions, which can also be in the form of problems or multiple-choice questions.
Assignments: Quizzes and Homework (Assignments) might be applicable. Scientific Research Ethics Rules are very important while preparing assignments. The students should be careful about citing any material used from outside sources and reference them appropriately.
Missed exams: Any student missing an exam needs to bring an official medical report to be able to take a make-up exam.
Projects: A group project with teamwork is welcome.
Attendance: Attendance requirements are announced at the beginning of the term. Students are usually expected to attend at least 70% of the classes during each term.
Objections: If the student observes a material error in his/her grade, he/she has the right to place an objection to the Faculty or the Department. The claim is examined and the student is notified about its outcome.