

END3961 SYSTEM ANALYSIS

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Date and Time

Wednesday 09:00-11:50

Aim and Content of the Course

The main objective of the System Analysis course is to explain system concepts, system thinking and holistic system approach, the tasks that should be performed for the analysis of corporate systems, and tools and techniques to be used in a systematic way.

At the end of this course, industrial engineer candidates, who will generally work on the development of systems; will understand their mission as an analyst throughout the system development life cycle in an organization, learn the basic concepts, knowledge and skills, tools and techniques to use.

Students will understand the roles of a system analyst, business analyst, process analyst, requirements analyst etc., and will also recognize what these roles do through current situation analysis, requirements analysis, designing solutions for a problem, evaluating and proposing solution alternatives. They will have the opportunity to experience by applying case studies.

Course Materials

Slides are going to be prepared from several sources given below and are going to be posted on <https://avesis.yildiz.edu.tr/nzraydin> in pdf format, weekly.

Sources

1. "PMI Guide to Business Analysis"
2. "BABOK v3, A Guide to the Business Analysis Body of Knowledge", International Institute of Business Analysis, 2015, ISBN-13: 978-1-927584-03-3.
3. "Management Science: Decision making through systems thinking", H.G. Dällenbach ve D.C. McNickle, Palgrave, 2005, ISBN-13: 978-1-403941-74-9.
4. "System Analysis & Design Methods", J. L. Whitten ve L. D. Bentley, McGraw Hill, 2007, ISBN-13: 978-0-07-305233-5.
5. "System Analysis and Design", K. Kendall ve J. Kendall, Prentice Hall, 2011, ISBN-13: 978-0-13-608916-2. O

6. "Modern Systems Analysis and Design", Jeffrey A. Hoffer, Joey F. George, Joseph S. Valacich, 2017, ISBN-13: 978-0-13-420492-5
7. "Sistem Yönetimi", Prof.Dr. Haluk Erkut, İrfan Yayımcılık, 1995, ISBN: 975-3-710372

Evaluation System: If otherwise is not stated by the YTU senate the following evaluation system is going to be used.

	Percentage
Midterm	30
Project * and Quizzes**	30
Final	40

*Please obtain info on topics and due dates of the project study through <https://avesis.yildiz.edu.tr/nzraydin> under Announcements & Documents sections.

**Quizzes may be conducted at any day and time throughout the semester. Students, who are in the classroom on that day and time will be able to take the quiz. There will not be make-up exam for quizzes.

Weekly Subjects

Week	Subject
1	Introduction: Goal and motivation of the course; Business and system analyst in Industrial Engineering; Career in System Analyst-Business Analyst-Process Analyst.
2	Basics on System: System Definition, Basic Components of a System, Basic Characteristics of a System, Classification of Systems, System Models, System Thought, System Approach, Holistic System Approach, Socio-Technical System Approach, System Perspective to Institutions.
3	<p>Introduction to Business and System Analysis:</p> <p>System Development Life Cycle (SDLC), Business and System Analysis in SDLC, Business Analysis Body of Knowledge (BABOK), Basic Concepts of Business and System Analysis, Basic Concept Model of Business and System Analysis, Business Analysis Knowledge Areas from BABOK perspective</p> <p>Project Management (PMI-BA) Perspective to Business and System Analysis, Business Analysis Project Types, Business Analysis Maturity Model, Business and System Analysis Projects Life Cycle, PMI Business Analysis Knowledge Areas and Process Groups.</p> <p>General Process and Steps of Business and System Analysis: Initialization and Planning, Internal and External Environmental Analysis, Current Situation Analysis, Problem Analysis, Future Situation Definition, Development of Solution Alternatives, Evaluation of Alternatives and Selection of a Solution, Solution Design, Application of Solution, Evaluation of Solution and Analysis Termination.</p>
4	<p>Business Analysis Planning and Monitoring Techniques: Work Breakdown Structure (WBS), Brainstorming, Business Cases.</p> <p>Internal and External Environmental Analysis Techniques: PEST Analysis, Porter's 5 Power Models, Canvas Business Model, SWOT Analysis, Trend Analysis, BCG Matrix, MOST Analysis</p>
5	Demonstrating Requirements and Collaborating with Stakeholders Techniques: Qualitative Techniques: Interviews, Workshops,

	Quantitative Techniques: Questionnaires, Question Sets, Data Analytics, Balanced Scorecard
6	Current Situation Analysis_1: Requirements, Scope and Products, Business Processes, Business Process Management (BPM) Techniques: Functional Separation, Use Case Diagram, Data Flow Diagrams, CATWOE, PERSONA Analysis, Customer Journey Mapping, Process Mapping
7	Current Situation Analysis_ 2: Metrics, Data, and Information Systems Techniques: Key Performance Indicators (KPIs), Benchmarking, Entity-Relationship Diagrams, Data Flow Diagrams, Context Diagrams, Information Technology Diagrams
8	Problem Analysis Techniques: Root Cause Analysis, 5 Causes Analysis, Fishbone Diagram, Mutual Relationship Diagram, Pareto Analysis. Future Situation Analysis and Change Strategy Techniques: Risk Analysis, Gap Analysis, Cost-Benefit Analysis, Cost Estimation, Decision Trees, Financial Analysis, Total Cost of Ownership, POPIT Model, Feasibility Study.
9	
10	Development of Solution Alternatives, Evaluation of Alternatives and Choice of Solution, Solution Design Techniques: Matrix and Diagrams, Non-Functional Requirements, Decision Models
11	Implementation of the Solution, Evaluation of the Solution and Finalizing the Analysis Techniques: Classical and Agile Software Development Approaches, Impact Analysis, Canoe Analysis, Reserve (Backlog) Management, Performance Analysis
12	Presentations and Basic Skills of Business and System Analyst: Analytical Thinking and Problem Solving, Behavioral Characteristics, Business and Process Knowledge, Techniques and Technology, Communication Skills, Interaction Skills, Common Mistakes.
13	Presentations and/or Guest Speaker: Business Analysis and System Analyst from Information Technology (IT) Perspective.
14	Presentations and/or Guest Speaker: Business Analysis and System Analyst from Business Process Management (BPM) Perspective.

NOTE 1: The course plan can be rearranged for different reasons, please follow it regularly throughout the semester...