

Analysis and Design of Information Systems

- 1. Course number and name:** 020ADPES3/020ADIES3 Analysis and Design of Information Systems
- 2. Credits and contact hours:** 4 ECTS credits, 2x1:15 contact hours
- 3. Name of course coordinator:** Kassem Ahmad
- 4. Instructional materials:** PowerPoint slides; course handouts; exercises worksheets
- 5. Specific course information**
 - a. Catalog description:**

This course introduces the fundamentals of Information Systems (IS) within a corporate context, focusing on the structured analysis and modeling of data and processes. Students will learn how to analyze organizational data needs and model information flows using the Merise methodology, a structured approach widely used in information systems design. The course covers both static and dynamic system aspects, including data flow diagrams (DFD), conceptual and logical data models (MCD, MLD), and treatment models (MCT, MOT, MoPT, MPD). Through practical examples and case studies, students will gain hands-on experience in developing coherent system architectures using Merise and its extended features (Merise 2).
 - b. Prerequisites:** None
 - c. Required** for CCE Software Engineering Option students; **Selected Elective** for students in the CCE Artificial Intelligence and Telecommunication Networks Options.
- 6. Educational objectives for the course**
 - a. Specific outcomes of instruction:**
 - Understand the principles of implementation in the production process of a software system.
 - Analyze an information system from a document or survey to computerize it.
 - Propose evolutions and solutions for existing information systems.
 - Use a modeling tool to strengthen communication between project stakeholders and project documentation.
 - Design a database that meets the requirements of the information system.
 - Set up and deploy an information system.

b. PI addressed by the course:

PI	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	4.1	4.2	5.1	7.1
Covered	x	x	x	x	x	x	x	x	x	x	x	x
Assessed	x	x	x	x	x	x	x	x				

7. Brief list of topics to be covered

- The information system in the company (1 lecture)
- The conceptual model of communication (1 lecture)
- Dynamic description of the IS (1 lecture)
- Functioning of a dynamic model + exercises MCT and MOT (2 lectures + exercises)
- The physical data model (PDM) (1 lecture)
- The Operational Model of Treatment (MoPT) (1 lecture)
- Static description of the information system (1 lecture)
- Properties (1 lecture)
- The entity or individual-type (1 lecture)
- The association (or relationship-type) (1 lecture)
- CDM construction rules – direct (3 lectures + exercises)
- Rules for building a CDM - by analyzing Functional Dependencies (1 lecture)
- Logical model of data + exercises (2 lectures + exercises)
- The rules of transition from the MCD to the relational model + exercises (1 lecture)
- Generalization / specialization of entities - MERISE 2 (1 lecture)
- Generalization / specialization of associations - MERISE 2 + exercises (2 lectures + exercises)
- Realization: Case study - self-evaluation (3 sessions)
- Work on projects (4 sessions)