Information Systems Analysis and Design

Course Definition

Information

Technology

Engineering

Syrian Arab Republic	الجمهورية العربية السورية
Ministry of Higher Education And Scientific Research	وزارة التعليم العالــي والبحث العلمي
Syrian Virtual University	الجامعة الافتراضية السورية

1. Basic Information:

Course Name	Information Systems Analysis and Design
Course Code	BID601
Number of Presentational Sessions*	20
Number of Synchronous Sessions**	10
Number of Shorter Tests***	2
Number of Exams***	1
Theoretical Sessions Work Load (hrs.)	60
Practical Sessions Work Load (hrs.)	30
Credit Hours	6

*Each presentational session comprises both recorded lecture (1.5 hrs.) and interactive learning content (1.5 hrs.).

**Each synchronous session comprises the interactive lecture carried out in real time in a virtual class (1.5 hrs.).

***Each shorter test is 0.5 hr. long. The final exam is 2 hrs. long.

N.B.

Generally, each chapter requires two presentational sessions: one for the recorded content and one for the interactive content (unless the chapter is too long, in which case it may require more sessions (. This note applies to synchronous sessions as well, where each chapter requires one synchronous session generally.

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2. Prerequisites courses:

Course	Code
Database Systems I	BDB501

3. Course Objectives:

This course deals with the analysis and design phases of system building and operation.

The analysis phase addresses the definition of the life cycle concept of data systems development and development events by identifying requirements, including the different types of methodologies used in development, whether procedural or object-oriented and supportive schemes, including the necessary techniques and tools.

This phase also includes the architecture of use cases, modelling of procedures, their flow schemes and data models .

The design phase includes training in appropriate decision-making for the construction and operation of the system, including the preparation of relevant specifications and determinants, the design of the physical entity and the necessary programmes.

4. Learning Outcomes (LO):

At the end of the course, the student can:

- Learn about the life cycle of systems development
- Mastering analysis, requirements and use, procedural modelling and data modelling
- Completion of design processes including structure, interfaces, software and data storage in traditional ways
- Identify the object-oriented methods and their supporting plans to complete the stages of analysis and design

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5. Assessment Results:

Chapter Number	Chapter Title	General Objectives	Assessment Type				
			Interactive Content & Recorded Sessions	Applied Activities (Synch. Sessions)	Final Exam*/ Shorter Tests	Presentations and Interviews	Reports
CH1	Systems Development Life Cycle	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√
CH2	Requirements Determination	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√
CH3	Use Case Analysis	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√
CH4	Process Modeling	Comprehension –Analytical	√	√	√	√	√

		Thinking – Tools and Application Hands– On					
CH5	Data Modeling	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√
CH6	Architecture Design	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√
CH7	User Interface Design	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√
CH8	Program Design	Comprehension –Analytical Thinking – Tools and	√	√	√	√	√

		Application Hands– On					
CH9	Data Storage Design	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√
CH10	Object Oriented Analysis and Design	Comprehension –Analytical Thinking – Tools and Application Hands– On	√	√	√	√	√

*The final exam is two hours long and is given at the end of the course.

**Shorter tests are about 30 minutes long and are given after three or four lectures throughout the semester during synchronous sessions.

***Presentations, interviews, and reports are submitted once after each three or four lectures throughout the semester during synchronous sessions.

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6. Course Syllabus:

Chapter	Subject	Content	Number of Learning Objects	Number of synchronous Learning Objects
CH1	Systems Development Life Cycle	1. Introduction 2. Systems life cycle 3. Systems development methodology 4. Selection of appropriate development methodology 5. Development team skills and its relevant tools	5	2
CH2	Requirements Determination	1. Introduction 2. Requirements determination 3. Requirements analysis techniques 4. Requirements acquisition techniques	4	2

CH3	Use Case Analysis	1. Introduction 2. Use cases	2	1
CH4	Process Modeling	1. Data flow charts 2. Elements of data flow charts 3. Building data flow charts 4. Review data flow charts 5. Business procedural schemes 6. Elements of business procedural schemes 7. Example of business procedural schemes	7	3
CH5	Data Modeling	1. Entity and relationship schemes 2. Elements of entity and relationship schemes 3. Data Dictionary	6	3

		4. Building entity and relationship schemes 5. Design issues 6. The relationship between the data model and the procedural model		
CH6	Architecture Design	1. Structure components 2. Types of structure 3. Architechture design mode 4. Specifications of hardware and software 5. Factors helping to choose hardware and software	**5**	**2**
CH7	User Interface Design	1. Principles of designing user interfaces 2. Design user interfaces 3. Mobility design	**5**	**2**

		4. Input design 5. Output design		
CH8	Program Design	1. Building a physical data flow chart 2. Software design 3. Structure architecture 4. Design directions 5. Software description	**5**	**2**
CH9	Data Storage Design	1. Data storage formulas 2. Moving from logical data model to physical data model 3. Optimal data storage	**3**	**1**
CH10	Object Oriented Analysis and Design	1. Features of object–oriented systems 2. Object oriented analysis and design 3. Standard modeling language 4. Use case chart	**7**	**3**

		5. Row chart 6. Cascade Chart 7. Machine Case Chart		

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7. Practical Activity:

- **Tools and Labs:**

Tool Name	Description
Rational Rose	–
Umbrello	–
Papyrus UML	–

- **Practical Activities per Chapters:**

Chapter	Activities Type	Remarks
CH1	☑ Exercises ☑ Homework ☐ Webinars ☑ Project ☐ Experiment ☐ Other	
CH2	☑ Exercises ☑ Homework ☐ Webinars ☑ Project ☐ Experiment ☐ Other	

CH3	☑ Exercises ☑ Homework ☑ Webinars ☐ Project ☐ Experiment ☐ Other	
CH4	☑ Exercises ☑ Homework ☐ Webinars ☑ Project ☐ Experiment ☐ Other	
CH5	☑ Exercises ☑ Homework ☐ Webinars ☐ Project ☐ Experiment ☐ Other	
CH6	☑ Exercises ☑ Homework ☐ Webinars ☐ Project ☐ Experiment ☐ Other	

CH7	☑ Exercises ☑ Homework ☑ Webinars ☐ Project ☐ Experiment ☐ Other	
CH8	☑ Exercises ☑ Homework ☐ Webinars ☐ Project ☐ Experiment ☐ Other	
CH9	☑ Exercises ☑ Homework ☐ Webinars ☐ Project ☐ Experiment ☐ Other	
CH10	☑ Exercises ☑ Homework ☐ Webinars ☑ Project ☐ Experiment ☐ Other	

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8. References:

1. Systems Analysis and Design, 7th Edition 2019, Dennis, A., Wixom, B.H. & Roth, R. M. –Wiley

2. Modern Systems Analysis and Design (Golbal Edition) (2020) Joseph S. Valacich and Joey F. George GE–pearson

3. Analysis snd Design of Imfprmation Systems (2007) Arthur M. Langer

4. Essence of Systems Analysis and Design, A Workbook Approach (2017) Sajja, p., Springer