



University: *Fayoum University*
 Faculty: *Computers and Information*
 Department: *Information Systems*

Course Specification

1- Basic Information		
Code: INF 381	Course Title: Systems Analysis and Design	Year/Level: Third year – First term
Programme: B.Sc degree in Information Systems	Number of units:	Lecture: 3 hrs/ week
		Tutorial: 0 hrs/ week
		Practical: 2 hrs/ week

2- Aims of Course:
<ol style="list-style-type: none"> 1. Understanding the fundamental systems development life cycle 2. Understanding several different categories of system development methodologies and how to choose among them. 3. Being familiar with the different skills and roles required on the project team. 4. Being familiar with software and information systems design & application architecture design; the design of IS interfaces 5. Communicate effectively, in both written and oral forms, systems design specifications

3- Intended Learning Outcomes	
A- Knowledge and Understanding:	<p>A1) Identify quality criteria that enable future development of computer-based systems.</p> <p>a1) Analysis for information system</p> <p>a2) Understanding several different categories of system development methodologies</p> <p>A2) List the Fundamental topics in Computer Science and Information systems related to software engineering principles, computer organization and architecture</p> <p>a3) Principles of software design process</p> <p>a4) Knowledge of software development life cycles</p> <p>a5) Concepts of analysis for procedural programs (functional decomposition, dataflow modeling, ...)</p> <p>A3) Demonstrate the essential mathematics and physics relevant to computer science</p> <p>a6) Basics of object-oriented analysis and design.</p> <p>a7) Basics of database modeling.</p> <p>A7) Demonstrate essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study.</p> <p>a2) Understanding several different categories of system</p>

	<p>development methodologies</p> <p>a3) Principles of software design process</p> <p>a8) Analysis, design, implementation and maintenance of IS solutions</p> <p>A10) Identify and explain the fundamental concepts, principles, and techniques needed for the analysis, development, validation, verification, deployment, and operations of computer-based and information systems.</p> <p>a3) Principles of software design process</p> <p>a8) Analysis, design, implementation and maintenance of IS solutions</p> <p>a9) Knowledge of project management</p> <p>A11) Describe main concept of operating systems, information system and databases</p> <p>a4) Knowledge of software development life cycles</p> <p>a7) Basics of database modeling.</p> <p>A12) Selects advanced topics to provide a deeper understanding of some aspects of the subject such as Unified Process, object-oriented analysis and design, e-commerce technologies, and Decision support systems</p> <p>a6) Basics of object-oriented analysis and design.</p> <p>a10) Basics of unified process.</p> <p>A16) Demonstrate the life cycle principles of the information systems applications</p> <p>a2) Understanding several different categories of system development methodologies</p> <p>a4) Knowledge of software development life cycles</p>
<p>B- Intellectual Skills:</p>	<p>B1) Analyze real problems, and appropriate problem solving methods that satisfy commercial or industrial constraints and analyze results.</p> <p>b1) Resolve a wide range of problems related to the design and construction of Information systems.</p> <p>b2) Analyze different analysis phase requirements and produce the right architecture and a good design.</p> <p>B5) Discuss factors other than computational efficiency that influence the choice of algorithms, such as programming time, maintainability, and the use of application-specific patterns in the input data.</p> <p>b2) Analyze different analysis phase requirements and produce the right architecture and a good design.</p> <p>b3) identify the system development methodologies</p> <p>B6) Analyze the extent to which a computer-based system meets the criteria defined for its current use and future development</p> <p>b2) Analyze different analysis phase requirements and produce the right architecture, and a good design.</p> <p>b4) identify alternatives of solution for good design.</p> <p>B7) Determine goals for problem solving and test the result of the solution of the problems</p> <p>b1) Resolve a wide range of problems related to the design and</p>

	<p>construction of Information systems.</p> <p>b2)Analyze different analysis phase requirements and produce the right architecture and a good design.</p> <p>B8) Identify criteria to measure and interpret the appropriateness of a computer system for its current deployment and future evolution</p> <p>b1)Resolve a wide range of problems related to the design and construction of Information systems.</p> <p>b2) Analyze different analysis phase requirements and produce the right architecture, and a good design.</p> <p>b5) identify the system design specifications varies by system development methodology, quality requirements and write quality requirement statements, Read and understand a structure chart</p> <p>B9) Compare between the classifications of (data, results, methods, techniques, algorithms... etc.).</p> <p>b6) identify traditional Methods for Determining Requirements,</p> <p>b7) contemporary Methods for Determining System Requirements,</p> <p>b8) Requirements Determination using Agile Methodologies</p> <p>B12) Define the standard methodologies for solving information systems problems</p> <p>b3) identify the system development methodologies</p> <p>b4) several different Approaches to Improving Development.</p>
<p>C- Professional and Practical Skills:</p>	<p>C1)Analyze and improve organizational processes from an ICT perspective</p> <p>c1) Practice applying the system analysis and design phase techniques by developing UML design models</p> <p>c2) Construct and document the system design</p> <p>C4) Outline basic designs for data storage conceptual schemes</p> <p>c3) Managing an information systems projects, the activities of a project manager during project management project (PMP)</p> <p>c4) practice applying various methods for assessing project feasibility</p> <p>C9) Deploy different modeling techniques to model and analyze real life computing problems</p> <p>C5) Practice applying the IS development techniques by developing UML models</p> <p>C6) Implementing information systems.</p> <p>C11) Develop a range of fundamental research skills that enable the graduate to continuously increase his knowledge, advance his career and pursue graduate studies</p>

	<p>c7) Maintaining existing information systems c8) developing information systems.</p>
<p>D- General and transferable Skills</p>	<p>D3) Work as a member of a development team, recognizing the different roles within a team and different ways of organizing teams d1) The problem analysis and solving skills by applying the analytical techniques through the entire course d2) The communicational skills by contributing in a project depending on group efforts and cooperation practice D6) Demonstrate skills in team work, team management, time management and organizational skills d1) The problem analysis and solving skills by applying the analytical techniques through the entire course d2) The communicational skills by contributing in a project depending on group efforts and cooperation practice</p>

<p>4-Course Content:</p>	<ol style="list-style-type: none"> 1. Fundamental concepts, information systems analysis and design definition, the different types of information systems, information systems development life cycle (SDCL), and different Approaches to Improving Development. 2. Managing an information systems projects, the activities of a project manager during project management project (PMP), critical path scheduling and describe the process of creating Gantt charts and Network diagrams. 3. The contents of a Project Scope Statement and Baseline Project Plan, various methods for assessing project feasibility 4. Differences between tangible and intangible benefits and costs and between one-time vs. recurring benefits and costs, cost-benefit analysis and describe what is meant by present value, discount rate, net present value, return on investment, and break-even analysis 5. Good Systems Analyst Characteristics, Traditional Methods for Determining Requirements, contemporary Methods for Determining System Requirements, and Requirements Determination using Agile Methodologies 6. process modeling, the logical modeling of processes by studying examples of data flow diagrams (DFDs), different types of DFD, Draw data flow diagrams following specific rules and guidelines 7. data dictionary, English structure, decision tables, decision trees. 8. The process of form and report design, general guidelines for formatting forms and reports. 9. The process of interface and dialogue design, Contrast and apply methods for interacting with a system, various input
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	<p>devices and factors affecting their usability, Design graphical user interfaces</p> <p>10. The need for system design specifications varies by system development methodology, quality requirements and write quality requirement statements, Read and understand a structure chart</p> <p>11. The Process of Designing Distributed and Internet Systems, the key terms client/server architecture, local area network LAN, distributed database, and middleware, file server and client/server architectures, and alternative designs for distributed systems and their trade-offs</p> <p>12. implementation and maintenance.</p>
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5- Teaching and Learning Methods:	<ol style="list-style-type: none"> 1. Lectures 2. Tutorials 3. Class discussions 4. Internet searches 5. Independent Work 6. Group projects 7. Problem-based Learning
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6- Teaching and Learning Methods for handicapped students :	-
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7- Student Assessment	
A- Assessment Methods:	<ol style="list-style-type: none"> 1. Assignments and Quizzes 2. Midterm written exam 3. Oral exam 4. Practical exam 5. Final written exam
B- Assessment schedule:	<p>Midterm Examination: Week 7</p> <p>Practical examination Week 13</p> <p>Oral Examination: Week 14</p> <p>Final Examination: Week 15</p>
C- Weighting of assessments:	<p>Assignments and Quizzes: 0%</p> <p>Mid-Term Examination: 15%</p> <p>Oral Examination: 10%</p> <p>Final-term Examination: 75%</p>

8- Books and References	
A- Notes:	-
B- Essential Books (Text Books):	<ul style="list-style-type: none"> ▪ Modern System Analysis and Design. Jeffrey A.Hoffer, Joey F. George, and Joseph S.Valacich, Prentice Hall, 2008, Fifth Edition
C- Recommended Books:	- System Analysis & Design, L. Whitten, D. Bentley, Kevin Dittman, McGraw-Hill. (2007)

**D- Periodicals,
Web sites, ... etc**

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<http://www.just.edu.jo/~qaalthebyan/NYIT/MIST%20325/index.htm>

Course Professor: Dr. Rasha Badry Department Head: Dr. Amira Edress

cost-benefit analysis and describe what is meant by present value, discount rate, net present value, return on investment, and break-even analysis																						
5. Good Systems Analyst Characteristics, Traditional Methods for Determining Requirements, contemporary Methods for Determining System Requirements, and Requirements Determination using Agile Methodologies	5						X			X	X		X					X	X	X	X	
6. process modeling , the logical modeling of processes by studying examples of data flow diagrams (DFDs), different types of DFD, Draw data flow diagrams following specific rules and guidelines	6				X		X			X	X		X	X				X	X	X	X	
7. data dictionary, English structure, decision tables, decision trees.	7						X			X			X					X	X	X	X	
8. The process of form and report design, general guidelines for formatting forms and reports.	8			X			X					X			X			X	X	X	X	
9. The process of interface and dialogue design, Contrast and apply methods for interacting with a system, various input devices and factors affecting their usability, Design graphical user interfaces	9			X			X					X	X			X		X	X	X	X	
10. The need for system design specifications varies by system development methodology, quality requirements and write quality requirement statements, Read and understand a structure chart	10			X			X					X	X			X		X	X	X	X	

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12. implementation and maintenance.	12		x				x											x	x					x	x	x	x	

Course coordinator: Dr. Rasha Badry

Head of Department: Dr. Amira Edress