Course Specifications

General Information

Course name	Systems Analysis and Design
Course number	ITCS2310
Faculty	
Department	
Course type	Major Needs
Course level	2
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - The concepts of a system and what it means to develop and implement an information system in an organization
2 - The major phases of the system development life cycle
3 - Identifying the information and processing needs of the organization
4 - The ability to elicit, identify, recognize and capture requirements for information systems
5 - Producing of a structured system specification for a simple system from system analysis
6 - The representation of the system analysis and design by means of basic diagrammatic modeling tools
7 - Design the information system from the specifications including the user interface, menu structure, system modular structure, etc
8 - Understand Object-oriented analysis and design

Intended Learning Outcomes

Knowledge and Understanding	* a1. Identify the characteristics and elements of a system * a2. Describe the phases involved in developing any system * a3. Define the system design levels, design objectives, constraints, and methodologies * a4. Explain fundamental topics in computing, including software architectures, software engineering principles and methodologies and software tools * a5. Discuss the broad context within computing including issues of quality, reliability and enterprise * a6. Explain fundamentals of programming and the construction of computer-based systems and software engineering techniques * a7. Describe the challenges inherent in the maintenance and evolution of software systems, and the techniques and best practices currently available for dealing with them * a8. Discuss some aspects of the subject, such as Unified Process and software analysis and design
Intellectual Skills	* b1. Identify the types of feasibility analysis and the steps involved in the analysis * b2. Analyze the costs and benefits of a project * b3. Identify the elements of the documentation tool for structured design * b4. Define traditional and nontraditional problems, set goals towards solving them, and observe results * b5. Identify attributes, components, relationships, patterns, main ideas, and errors * b6. Establish criteria, and verify solutions * b7. Perform problem analysis from written descriptions; derive requirements specifications from an understanding of problems (analysis, synthesis). * b8. Create and/or justify designs to satisfy given requirements (synthesis, evaluation, application).
Professional Skills	* c1. Apply the major development activities in designing a system * c2. Specify, investigate, analyze, design and develop computer-based systems using appropriate tools and techniques * c3. Evaluate systems in terms of their quality and possible trade-offs, evaluate appropriate hardware and software solutions for given scenarios * c4. Recognize risks or safety aspects involved in the operation of computer-based systems * c5. Commercialize knowledge and skills to computing community and industry
General Skill	* d1. Collaborate effectively within multidisciplinary team * d2. Work in stressful environment and within constraints * d3. Prepare technical reports, and a dissertation, to a professional standard; use IT skills and display mature computer literacy * d4. Lead and motivate individuals * d5. Manage time and tasks * d6. Search for information and adopt life-long self-learning * d7. Develop Creativity and imagination skills, Self-assessment ability and Critical thinking and analytic ability * d8. Build problem-solving and decision-making skills and will be able to apply those skills effectively in all aspects of their future lives

Course Contents

1 - Fundamental concepts, system definition, user definition, the different type of users, communication gap, system analyst, system management, structure system analysis, system analysis tools
2 - data flow diagram (DFD), data dictionary, English structure, decision tables, decision trees
3 - The system life cycle, problem definition and modules, feasibility studies, cost/ benefit analysis. Source and destination of data, stores, and development plan
4 - Analysis phase, IPO chart, generating alternatives. Analyst's recommendation, logic of the process
5 - Detailed design, identifying options, system control program, screens, reports and files, test plan. Design methods, automation boundary, alternative implementations,
6 - System flow chart, and system components, Implementation schedule, physical elements, programs, files, manual procedure and training, forms, and maintenance

Teaching and Learning Methods

1 - Lectures
2 - Practical Exercises
3 - Case Study
4 - Projects

Students Assessment

Assessment Method	TIME	MARKS
Mid-Term I	6th week	20
Projects	12th week	20
Class Work	During 16 weeks	10
Final Exam	16th week	50

Books and References

Essential books	Alan Dennis and Barbara H Wixom. System Analysis and Design. John Wiley & Sons, 4th Edition, 2008
Recommended books	Alan Dennis, Barbara H. Wixom, and D. Tegarden. System Analysis and Design with UML. John Wiley & Sons, 3rd Edition, 2007
	J. Satzinger, R. Jackson, and S. Burd. Systems Analysis and Design in a Changing World. Course Technology, 3rd Edition, 2009

Knowledge and Skills Matrix

Main Course Contents	Study Week	Knowledge and Understanding	Intellectual Skills	Professional Skills	General Skill
Fundamental concepts, system definition, user definition, the different type of users, communication gap, system analyst, system management, structure system analysis, system analysis tools	1	a1, a2, a4	b4, b6, b7	c1	d1- d8
data flow diagram (DFD), data dictionary, English structure, decision tables, decision trees	2	a1, a2, a4	b4, b5, b7	c1	d1- d8
The system life cycle, problem definition and modules, feasibility studies, cost/ benefit analysis. Source and destination of data, stores, and development plan	3-5	a2, a4, a5	b1, b2, b4, b5, b6	c2, c5	d1-d8
Analysis phase, IPO chart, generating alternatives. Analyst's recommendation, logic of the process	6-9	a4, a5, a8	b5, b6, b7, b8	c2	d1-d8
Detailed design, identifying options, system control/ program, screens, reports and files, test plan. Design methods, automation boundary, alternative implementations,	10-13	a3, a4, a5, a8	b3, b5, b6, b7	c3	d1-d8
System flow chart, and system components, Implementation schedule, physical elements, programs, files, manual procedure and training, forms, and maintenance	14-15	a5, a6, a7	b6, b7, b8	c4	d1-d8