



**Philadelphia University**  
**Faculty of Administrative & Financial Sciences**  
**Department of Business Networking and Systems**  
**Management**

**Course Syllabus**

<b>Course Title: System Analysis and Design.</b>	<b>Course code: 371332</b>
<b>Course Level: third year</b>	<b>Course prerequisite (s) and/or co requisite (s): Database 371231</b>
<b>Lecture Time:</b>	<b>Credit hours: 3</b>

**Academic Staff**

**Specifics**

<b>Name</b>	<b>Rank</b>	<b>Office Number and Location</b>	<b>Office Hours</b>	<b>E-mail Address</b>
Mr. Ahmad Al-Ghoul	M.Sc.	32404		ahmad4_2_69@hotmail.com

**Course module description:**

This course highlights a number of concepts of systems, in system's life cycle. you'll gain more experience in dealing with issues under different views on systems: Managers, users of different levels, and technicians.

It deals with the planning phase, how to make feasibility study, in a preliminary investigation and the end product of an investigation.

It deals with techniques applied in information system analysis; the course discusses system requirements and fact-finding techniques, data and process modeling techniques to develop a logical model of the proposed system and document the system requirements.

This course will teach you how to use object-oriented methods to document, analyze, and model an information system using (UML), remaining activities in the systems analysis phase, which include evaluation of alternative solutions for hardware and software, preparation of the system requirements document, and presentation of the system requirements document to management.

It introduces system design techniques output design issues and various types of output, input, user interface and data design, describe data relationships, draw an entity-relationship diagram, define cardinality and use cardinality notation, explain the concept of normalization

Describe the systems design specification and explain the contents of each section, based on the requirement specification worked out during the analysis phase (functioning diagram, relationship diagram, data flow diagram...). At the end of this phase, you need to identify the borderline between the computer system and human being and find answers to the question of how to attain the system's objectives.

The last part of the course introduces the implementation phase includes, draw a structure chart showing top-down design, modular design, cohesion, and coupling, explain the coding process and how code is generated, explain unit testing, integration testing, and system testing, list the main steps in system installation and evaluation and develop an overall training plan

### **Course module objectives:**

- Enumerate, differentiate between different system types
- Breakdown the system into its components
- Understand development lifecycle
- Understand and specify what system approach to implement
- Explain the abstract and define system problems and requirements
- Select an appropriate analysis method
- Dealing with and work with analysis different models and techniques
- Understand and work with design issues, interface, input, output, report, control and Database
- Connecting the whole analysis and design process

### **Course/ module components**

- **Books**

#### **Text book:**

System Analysis and Design, Sixth Edition

**Authors:** Gary B. Shelly, Thomas J. Cashman and Harry J. Rosenblatt ,

**Publisher:** SHELLY CASHMAN SEWIES

**Year of publication:** 2007

In addition to the above, the students will be provided with handouts by the lecturer.

### **Homework guide .**

**HOMEWORK:** Homework is an essential part of the educational process.

The homework in this course will reinforce the material covered in the classroom and provide time for practice. Students will earn points for each homework assignment completed. Homework assignments will be graded based on completion.

#### **HOMEWORKS GRADING SCHEME** Grades will be determined as follows:

Homework	Submission date	Grade
Assignment 1	Third week	3 marks
Assignment 2	Eighth week	3 marks
Assignment 3	Twelfth week	3 marks
Project	Fifteenth week	6 marks

## **Teaching methods:**

- Duration: 16 weeks in first semester, 48 hours in total
- Lectures: 32 hours (2.5 hours per week),
- Laboratories: 16 hours, 1 per week

## **Learning outcomes:**

### • Knowledge and understanding

A student completing this module should:

- Be able to describe the Systems Development Life Cycle (SDLC).
- Be able to evaluate information systems requirements.
- Be able to determine how to collect information to determine requirements.
- Be able to construct and evaluate data flow diagrams.
- Be able to construct and evaluate data dictionaries.
- Be able to use and evaluate methods of process descriptions to include structured English, decision tables and decision trees.
- Be able to use and evaluate Unified Modeling Language tools and techniques.
- Be able to discuss the systems design phase of the SDLC.
- Be able to implement a workable security policy that protects information assets from potential intrusion.
- Be able to design and evaluate system input, outputs, interfaces. And develop
- Be able to design software, applying software engineering principles and standards to the process.
- Be able to construct and evaluate entity-relationship diagrams.
- Be able to design, analyze, develop, and work with relational database

## **Cognitive skills (thinking and analysis).**

The lecturer will present the material in the text book in an interactive way that stimulates the thinking side of students.

Conducting the learning objectives for each module components in clear manner to insure the material is digested by the students.

- - Analyzing, summarizing and integrating information from a variety of media.
- The student must be to understand different available analysis and design methods, different CASE tools and have the ability and understanding of using the suitable method depends on project.

## **Communication skills (personal and academic).**

-Module language: English

-For every lecture the last five minutes will be open for discussion. For further discussion, the students are welcome at the lecturer s office hour as appeared in first page.

Time Management: Assignments are varied, integrated, and overlapping, and students must focus on multiple issues, projects, and demands. Students must, therefore, take responsibility for planning and pacing their own work as well as developing time management skills.

Project Development: Groups of approximately two to three students develop projects, complete research, schedule meetings, write papers and reports, and deliver a 20-30 minute oral presentation using visual aids.

Group Management: Students work on group projects to practice interpersonal skills by communicating with group members, other groups, and peers outside the group.

## **Practical and subject specific skills (Transferable Skills).**

The student is able to analyze and design information systems using the suitable method and CASE tools.

### **Assessment instruments**

- Quizzes.
- Home works
- Final examination: 40 marks

<b><u>Allocation of Marks</u></b>	
<b>Assessment Instruments</b>	<b>Mark</b>
First examination	<b>20</b>
Second examination	<b>20</b>
Final examination: 50 marks	<b>40</b>
Quizzes, Home works	<b>20</b>
Total	<b>100</b>

## **Documentation and academic honesty**

This course is given from the textbook mentioned above. It is copyright protected. Students are encouraged to purchase this textbook from the university bookshop.

### **Definition of Plagiarism**

Plagiarism is the unacknowledged borrowing of another writer's words or ideas.

### **How Can Students Avoid Plagiarism?**

To avoid plagiarism, you must give credit whenever you use

- another person's idea, opinion, or theory;
- any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge;
- quotations of another person's actual spoken or written words; or
- Paraphrase of another person's spoken or written words.

If you are in doubt about whether what you are doing is inappropriate, consult your instructor. **A claim that “you didn't know it was wrong” will not be accepted as an excuse.**

### **Penalty for Plagiarism**

The minimum penalty for an act of plagiarism is a 0 on the assignment, homework, and project. Serious cases of plagiarism may result in failure in the course as a whole, or expulsion from the university.

## Course/module academic calendar

<b>week</b>	<b>Basic and support material to be covered</b>	<b>Homework/reports and their due dates</b>
<b>(1)</b>	The Impact of Information Technology, characteristics and components of information systems, understanding the business and business drivers for today's ISs	
<b>(2)</b>	How Business uses IS, systems development tools, techniques, and methods, systems development life cycle	
<b>(3)</b>	Strategic Planning, information systems projects, factors that affect systems projects, operational and technical feasibility	
<b>(4)</b>	Economic and schedule feasibility, evaluating feasibility, preliminary Investigation Overview, preliminary investigation steps	
<b>(5)</b>	Systems Development Methodologies overview and categories, Joint application development (JAD) and Prototyping-based methodologies, Structured analysis and design and Object-Oriented analysis and design	
<b>(6)</b> <b>First examination</b>	First Exam, Repetition (system modeling)	
<b>(7)</b>	Systems Analysis Phase Overview, Fact-Finding Overview and interviewing technique, other fact finding techniques	
<b>(8)</b>	Data flow diagram symbols, creating the context and level o DFD diagram, creating the lower level DFD diagram	
<b>(9)</b>	Using data dictionary to document data elements and data structures, create data dictionary entries for data flow, data store, process & entities, modular design & structured English	
<b>(10)</b>	Decision tables, decision trees	
<b>(11)</b> <b>Second examination</b>	Object-Oriented analysis and design using UML , Object relationship diagram, use cases and use case diagrams	

<b>(12)</b>	Class diagrams, sequence diagrams, state transition diagrams, and activity diagrams	
<b>(13)</b>	the Impact of the Internet on systems development, ascertaining hardware needs	
<b>(14)</b>	The Software Acquisition Process, systems design guidelines and objectives, Output Design objectives and issues, report design.	
<b>(15)</b>	User Interface Design, basic Principles and guidelines of user interface design, input design objectives & guidelines, input errors, layout, and control	
<b>(16)</b> <b>Final Examination</b>	Data Design Concepts, database components and Web-Based database design, data design terminology, Entity relationship diagrams, Unnormalized and first normal form, second and third normal form	

### **Expected workload:**

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

### **Attendance policy:**

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

### **Module references**

#### **Books**

Students will be expected to give the same attention to these references as given to the Module textbook(s)

[1] System analysis and design, sixth edition

Authors: Kenneth E. Kendall and Julie E. Kendall

Publisher: Prentice Hall

[2] MODERN SYSTEMS ANALYSIS AND DESIGN Third Edition

Authors: Jeffrey A. Hoffer , Joey F. George, Joseph S. Valacich

Publisher: prentice hall

[3] Introduction to Systems Analysis and Design.

Authors: Hawryszkiewyer

Publisher: prentice hall 1990

[4] Systems Analysis and Design, 3rd Edition

Authors: Alan Dennis, Barbara Haley Wixom and

Roberta M. Roth,

Publisher: John Wiley's & Sons Inc., 2006.

ISBN: 047172257X

## Websites

### System Analysis

JAD

<http://www.utexas.edu/ecs/trecs/hris/pub/jad.php>

RAD

[http://webopedia.internet.com/TERM/R/Rapid\\_Application\\_Development.html](http://webopedia.internet.com/TERM/R/Rapid_Application_Development.html)

The Unified Modeling Language

<http://www-306.ibm.com/software/rational/uml/?SMSESSION=NO>

Yourdon Symbols

<http://www.yourdon.com/>

Data Dictionaries

<http://burks.bton.ac.uk/burks/foldoc/47/28.htm>

Decision Tables

<http://www.cems.uwe.ac.uk/jharney/table.html>

Outsourcing

<http://www.outsourcing-journal.com/>

Application Service Providers

<http://www.aspnews.com/>

Financial Analysis Tools

[http://www.toolkit.cch.com/text/p06\\_6500.asp](http://www.toolkit.cch.com/text/p06_6500.asp)

Benchmark Tests

<http://www.tpc.org/>

### Object-Oriented Analysis

Unified Modeling Language

<http://www.uml.org/>

Polymorphism

[http://whatis.techtarget.com/definition/0,,sid9\\_gci212803,00.html](http://whatis.techtarget.com/definition/0,,sid9_gci212803,00.html)

Use Case Modeling

<http://www.objectworkshop.com/index.html>

Use Case Diagrams

<http://www.andrew.cmu.edu/course/90-754/umlucdfaq.html>

### System Design

Printed Output

[http://edweb.sdsu.edu/courses/ET650\\_online/MAPPS/Glossary.html](http://edweb.sdsu.edu/courses/ET650_online/MAPPS/Glossary.html)

User Interface Design

<http://www.asktog.com/basics/firstPrinciples.html>

Human-Computer Interaction

<http://www.hcibib.org/>

Input Devices

<http://www.billbuxton.com/InputSources.html>

Data Entry

<http://www.nd-soft.com/prod01.htm>

Referential Integrity

[http://webopedia.internet.com/TERM/r/referential\\_integrity.html](http://webopedia.internet.com/TERM/r/referential_integrity.html)

Entity-Relationship Diagrams

<http://www.smartdraw.com/fileNotFound.aspx?aspxerrorpath=404;http://www.smartdraw.com/resources/centers/software/erdcontents.htm>

Cardinality

<http://www.smartdraw.com/fileNotFound.aspx?aspxerrorpath=404;http://www.smartdraw.com/resources/centers/software/erdcardinality.htm>

Normalization

<http://www.sum-it.nl/cursus/dbdesign/english/logis010.php3>

Data Warehousing

<http://www.datawarehousing.com/>

Data Mining

<http://www.twocrows.com/glossary.htm>