

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	SCHOOL OF ENGINEERING		
<b>ACADEMIC UNIT</b>	Department of Informatics and Computer Engineering		
<b>LEVEL OF STUDIES</b>	Undergraduate		
<b>COURSE CODE</b>	ICE-5003	<b>SEMESTER</b>	5th
<b>COURSE TITLE</b>	Analysis and Design of Information Systems		
<b>INDEPENDENT TEACHING ACTIVITIES</b> if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits	<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>	
Lectures	2		
Practice Exercises	2		
Laboratories	1		
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).	5	5	
<b>COURSE TYPE</b> general background, special background, specialised general knowledge, skills development	Special Background		
<b>PREREQUISITE COURSES:</b>			
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uniwa.gr/courses/CS166/">https://eclass.uniwa.gr/courses/CS166/</a>		

### (2) LEARNING OUTCOMES

#### Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described. Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

The course is an introduction to the concepts of modeling, analysis and design of systems with emphasis on the information and communication systems of enterprises and organizations. In particular, the understanding of the techniques, basic models and methods used in the analysis and design of information and communication systems and their effective use in IT projects, management and development of information systems are pursued and achieved. The understanding of the mechanism for adapting techniques, models and methods to the needs of IT projects, the need to establish integrated methodologies as well as the content of the most representative of these integrated methodologies are pursued and achieved. At the same time, knowledge is provided on the organization and operation of organizations and businesses.

The application of the aforementioned concepts and knowledge to the established categories of information systems (DSS, MIS, ESS, KWS, OAS, TPS, ERP, SCM, CRM, HRM, Accounting, Commercial Management, Fixed Assets, etc.) of different types of organizations is also examined.

Upon successful completion of the course the student will be able to:

- Explains the basic and critical characteristics of systems, their connection to contained systems.
- Utilizes the basic tools and techniques of Systems Analysis & Design.

- Prepares a case study of a rudimentary operational system.
- Uses appropriate methodologies of analysis and design of systems.
- Participate in addressing an operational system case study and explain the different roles involved.
- Explains the functional architecture of established information systems applications.

**General Competences**

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	Project planning and management
Adapting to new situations	Respect for difference and multiculturalism
Decision-making	Respect for the natural environment
Working independently	Showing social, professional and ethical responsibility and sensitivity to gender issues
Team work	Criticism and self-criticism
Working in an international environment	Production of free, creative and inductive thinking
Working in an interdisciplinary environment	.....
Production of new research ideas	Others...
	.....

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Adapting to new situations
- Decision-making
- Working independently
- Team work
- Working in an interdisciplinary environment
- Production of free, creative and inductive thinking

**(3) SYLLABUS**

Basic concepts of generalized Systems Theory, the basic characteristics of Business Systems and Information & Communication Systems. Processes, techniques, models and methods of analysis and design of information systems. Models: conceptual, organizational (logical), physical. Data collection techniques for capturing and analyzing a system. Basic techniques for the representation and optimization of data, information flows, functions, processes, organizational structure of systems, compositions of equipment and networks. Basic models and techniques for designing human-machine communication, functional application architecture, communication systems design, information systems design of specialized technologies (distributed, multimedia systems, internet, etc.). Basic functions of a standard business system. Principles of Design of systems of specialized functions. Phases of development, ways of utilizing techniques, conducting studies, interventions and implementation of information systems. Technical mapping and analysis of exemplary Information Systems (e.g. Lending Library, General Accounting, Commercial Management, Asset Management, etc.).

**(4) TEACHING and LEARNING METHODS - EVALUATION**

<b>DELIVERY</b>			
Face-to-face, Distance learning, etc.			
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>	Specialized systems design software. Support of the learning process through the University's e-learning platform.		
Use of ICT in teaching, laboratory education, communication with students			
<b>TEACHING METHODS</b>	<b>Activity</b>	<b>Semester workload</b>	
The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.  The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS	Lectures	26	
	Practice exercises	26	
	Laboratory practice	13	
	Laboratory Project for a case study Information System	20	
	Independent personal study	40	
	Course total	<b>125</b>	
<b>STUDENT PERFORMANCE EVALUATION</b>			
Description of the evaluation procedure	I. Written final exams (60%) that includes: - Short case study - Comparative evaluations of theoretical concepts		
Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other	II. Presentation of the Laboratory Project (40%)		
Specifically-defined evaluation criteria are given, and if and where they are accessible to students.			

**(5) ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:
1. Hoffer J. George J. Valacich J. ΠΛΗΡΟΦΟΡΙΑΚΑ ΣΥΣΤΗΜΑΤΑ, Σύγχρονη Ανάλυση & Σχεδίαση, Εκδόσεις ΤΖΙΟΛΑ, 2012
2. Νικήτα Ν. Καρανικόλα, Καθιερωμένα Πληροφοριακά Συστήματα Επιχειρήσεων: Τεχνική Αποτύπωση, Εκδόσεις Νέων Τεχνολογιών, Αθήνα, 2012.
3. A. Dennis, B-H. Wixom, D. Tegarden ΑΝΑΛΥΣΗ ΚΑΙ ΣΧΕΔΙΑΣΜΟΣ ΣΥΣΤΗΜΑΤΩΝ με τη UML 2.0: μια αντικειμενοστραφής προσέγγιση, Εκδόσεις Κλειδάριθμος 2010
4. Wallace P. Πληροφοριακά συστήματα διοίκησης, Εκδόσεις Κριτική, 2014
5. Halpin T., Morgan T., Information Modeling and Relational Databases: From Conceptual Analysis to Logical Design, Morgan Kaufmann, 2008.
6. Johannesson P., Sderstrm E., Information Systems Engineering: From Data Analysis to Process Networks, Idea Group Inc (IGI), 2008.

7. Curtis G., Cobham D.P., Business Information Systems: Analysis, Design and Practice, Pearson Education, 2008.
8. Δημητριάδης Αντ., Κοίλια Χρ., Κώστα Αθ., Λογιστικά Πληροφοριακά Συστήματα: Από τη Θεωρία στην Πράξη, Εκδόσεις Νέων Τεχνολογιών, Αθήνα, 2009.
9. Maciaszek L., Requirements Analysis and Systems Design, Pearson Education, 2007.
10. Olivé A., Conceptual Modeling of Information Systems, Springer, 2007.

- Related academic journals:

1. Business and Information Systems Engineering, Springer ISSN: 1867-0202
2. Information Systems, ELSEVIER, ISSN: 0306-4379
3. Information Systems Journal, John Wiley & Sons Ltd, ISSN: 1365-2575