



**University/Academy:** Arab Academy for Science and Technology & Maritime Transport  
**Faculty/Institute:** College of Computing and Information Technology  
**Program:** Computer Science / Information systems / Software Engineering

**Form No. (12)**  
**Course Specification**

**1- Course Data**

<b>Course Code:</b> IS171	<b>Course Title:</b> Introduction to Information Systems	<b>Academic Year/Level:</b> 1 / 1
<b>Specialization:</b> Information Systems	<b>No. of Instructional Units:</b> 2 hrs lecture 2 hrs lab	<b>Lecture:</b>

<b>2- Course Aim</b>	This course provides an introduction to information systems. Topics of interest include what exactly is an information system?, functions of information system, major business functions, types of information systems, the role of information in management problem solving, the role of Information Systems in firms competitive advantages, internet business models and E-commerce, it also deals with the factors influence the adoption of inter organizational systems, the benefits and disadvantages of the virtual office and the virtual organization, the benefits and risks of end-user computing, database management systems.
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**3- Intended Learning Outcome:**

<b>a- Knowledge and Understanding</b>	<b>Students will be able to demonstrate knowledge of:</b> <b>K1.</b> Essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study. <ul style="list-style-type: none"><li>▪ Know the role of information systems in modern organizations.</li><li>▪ Define the major types of information systems.</li><li>▪ Understand the concept of a system and how it relates to information systems.</li><li>▪ Understand concepts related to IS components, resources, and activities.</li><li>▪ Understand the history and evolution of computer hardware.</li><li>▪ Understand the main differences between computer systems categories.</li><li>▪ Understand the functions of the main components of a computer system.</li><li>▪ Know what is meant by computer peripherals and their types.</li><li>▪ Identify the computer systems and peripherals you would acquire or recommend for a business of your choice, and explain the reasons for your selections.</li><li>▪ Know about different technologies related to Input, output, storage,</li></ul>
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	<p>and memory</p> <ul style="list-style-type: none"> <li>▪ Understand the concept of computer software and software types.</li> <li>▪ Understand the differences between different categories of application software.</li> <li>▪ Define operating systems.</li> <li>▪ Understand issues associated with open source software.</li> <li>▪ Understand main concepts related to programming languages.</li> <li>▪ Understand the data management concept.</li> <li>▪ Know the main differences between traditional file approach and data base approach to data management.</li> <li>▪ Understand main concepts related to Major types of databases, Data warehouses and data mining, Logical data elements, Fundamental database structures, and Database development.</li> <li>▪ Understand the concept of a network.</li> <li>▪ Know the major trends in telecommunication and computer networks.</li> <li>▪ Define Internet, Intranet, and Extranet and differences between them.</li> <li>▪ Understand the two forms of peer-to-peer networking.</li> <li>▪ Understand the fundamentals of wired and wireless network technologies.</li> <li>▪ Define different network topologies.</li> <li>▪ Identify and understand the cross-functional enterprise systems: ERP, CRM, SCM, TPS, and enterprise collaboration systems.</li> <li>▪ Understand the need for enterprise application integration to improve the support of business interactions across multiple e-business applications.</li> <li>▪ Understand the main idea behind EC.</li> <li>▪ Understand the process of EC and its components.</li> <li>▪ Define different types of EC and Internet marketplaces.</li> <li>▪ Understand how DSS can improve decision making in modern organizations.</li> <li>▪ Know about the different types of DSS.</li> <li>▪ Understand how online analytical processing can meet key information needs of managers. <ul style="list-style-type: none"> <li>▪ Understand the main concepts of AI and Expert systems.</li> </ul> </li> </ul>
<p><b>b- Intellectual Skills</b></p>	<p><b><u>By the end of the course, the student acquires high skills and an ability to understand:</u></b></p> <p><b>I1.</b> Analyze computing problems and provide solutions related to the design and construction of computing systems.</p> <p><b>I2.</b> Realize the concepts, principles, theories and practices behind computing and information as an academic discipline.</p> <ul style="list-style-type: none"> <li>▪ Explain why knowledge of information systems is important for business professionals.</li> <li>▪ Demonstrate familiarity with the available career opportunities in information systems.</li> <li>▪ Identify several challenges that a business manager might face in managing the successful and ethical development and use of information technology in a business.</li> <li>▪ Explain the components and functions of a computer system.</li> <li>▪ Identify the major types and uses of microcomputer, midrange, and mainframe computer systems.</li> <li>▪ Outline the major technologies and uses of computer peripherals for input, output, and storage.</li> <li>▪ Identify a range of hardware technologies</li> <li>▪ Identify different software types.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Describe several important trends occurring in computer software.</li> <li>▪ Explain the purpose of several popular software packages for end-user productivity and collaborative computing.</li> <li>▪ Describe the functions of an operating system.</li> <li>▪ Describe the main uses of computer programming software, tools, and languages.</li> <li>▪ Explain the business value of implementing data resource management processes and technologies in an organization.</li> <li>▪ Outline the advantages of a database management approach to managing the data resources of a business, compared with a file processing approach.</li> <li>▪ Explain how database management software helps business professionals and supports the operations and management of a business.</li> <li>▪ Identify several major developments and trends in the industries, technologies, and business applications of telecommunications and Internet technologies.</li> <li>▪ Realize the business value of telecommunication and networks.</li> <li>▪ Identify the basic components, functions, and types of telecommunications networks used in business.</li> <li>▪ Explain the functions of major components of telecommunications network hardware, software, media, and services.</li> <li>▪ Explain the concept of client/server networking.</li> <li>▪ Explain the difference between digital and analog signals.</li> <li>▪ Identify the various transmission media and topologies used in telecommunications networks.</li> <li>▪ Realize the main differences between different cross-functional enterprise systems.</li> <li>▪ Identify the major categories and trends of e-commerce app.</li> <li>▪ Identify the essential processes of an e-commerce system.</li> <li>▪ Realize the benefits and requirements of EC systems.</li> <li>▪ Identify and explain the business value of several types of e-commerce marketplaces.</li> <li>▪ Identify the changes taking place in the form and use of decision support in business.</li> <li>▪ Identify the role and reporting alternatives of management information systems.</li> <li>▪ Explain the decision support system concept and how it differs from traditional management information systems.</li> </ul> <p>Explain how Executive information systems, Enterprise information portals, and Knowledge management systems can support the information needs of executives, managers, and business professionals.</p>
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<p><b>c- Professional Skills</b></p>	<p><b>By the end of the course the student will have the ability to:</b></p> <p><b>P2.</b> Implement comprehensive computing knowledge and skills in projects and in deployment of computers to solve position practical problems.</p> <p><b>P3.</b> Deploy the equipment and tools used for the construction, maintenance and documentation of computer applications.</p> <ul style="list-style-type: none"> <li>▪ Illustrate how the business applications of information systems can support a firm's business processes, managerial decision making, and strategies for competitive advantage.</li> </ul>
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	<ul style="list-style-type: none"> <li>▪ Provide examples of the components of real world information systems.</li> <li>▪ Give examples of the components and functions of a computer system.</li> <li>▪ Recommend computer system appropriate for a typical business.</li> <li>▪ Recommend computer systems and peripherals appropriate for a typical business.</li> <li>▪ Select appropriate technology for a typical case.</li> <li>▪ Illustrate and give examples of several major types of application and system software.</li> <li>▪ Recommend the appropriate application software appropriate for a typical need.</li> <li>▪ Suggest suitable programming language to be used with a typical case.</li> <li>▪ Assess the implication of using data management techniques in an organization.</li> <li>▪ Illustrate and give examples related to major types of databases, Data warehouses and data mining, Logical data elements, Fundamental database structures, and Database development.</li> <li>▪ Apply Metcalfe's law in understanding the value of a network.</li> <li>▪ Illustrate examples of the business value of Internet, intranet, and extranet applications.</li> <li>▪ Illustrate examples of the computer networks models and different network topologies.</li> <li>▪ Give examples of how cross-functional enterprise systems can provide significant business value to a company.</li> <li>▪ Give examples of how the Internet and other information technologies support business processes within the business functions of accounting, finance, human resource management, marketing, and production and operations management.</li> <li>▪ Illustrate and give examples of how EC process is implemented in EC applications</li> <li>▪ Assess the implication of using DSS techniques in an organization.</li> <li>▪ Select appropriate DSS technology in a typical case. <ul style="list-style-type: none"> <li>▪ Illustrate and give examples of several ways expert systems can be used in business decision-making situations.</li> </ul> </li> </ul>
<p><b>d- General Skills</b></p>	<p><b>Students will be able to:</b></p> <p><b>G 1.</b> Demonstrate the ability to make use of a range of learning resources and to manage one's own learning</p> <p><b>G 3.</b> Show the use of information-retrieval.</p> <p><b>G7.</b> Show the use of general computing facilities</p> <ul style="list-style-type: none"> <li>▪ Show the ability to autonomously read and understand some related real world cases.</li> </ul> <p>Show the ability to use different computing facilities in PC labs (e.g. MS office, open ERP, etc.).</p>

<b>4- Course Content</b>	<b>1</b>	<b>Identify and explain the different types of Information Systems.</b>
	<b>2</b>	<b>Appreciate the value of information systems in modern business management and operations.</b>
	<b>3</b>	<b>Identify and describe different types of SDLC methodologies.</b>
	<b>4</b>	<b>State the difference between the logical and physical design of a system.</b>
	<b>5</b>	<b>Define the term organization and identify its components.</b>
	<b>6</b>	<b>Define data management concepts and terms.</b>
	<b>7</b>	<b>Analyse and design a solution for a “real-world” Computer Business Information System.</b>
	<b>8</b>	<b>Discuss the ethical issues involved in developing and interacting with Information Systems.</b>
<b>5- Teaching and Learning Methods</b>	Lectures, Labs, Projects, Individual study & self-learning.	
<b>6- Teaching and Learning Methods for Students with Special Needs</b>	<ul style="list-style-type: none"> <li>• Students with special needs are requested to contact the college representative for special needs ( currently Dr Hoda Mamdouh in room C504)</li> <li>• Consulting with lecturer during office hours.</li> <li>• Consulting with teaching assistant during office hours.</li> <li>• Private Sessions for redelivering the lecture contents.</li> <li>• For handicapped accessibility, please refer to program specification.</li> </ul>	
<b>7- Student Assessment:</b>		
<b>a- Procedures used:</b>	Exams, labwork, and Individual Projects	
<b>b- Schedule:</b>	Week 7 exam Projects through the semester Week 16Final exam	
<b>c- Weighing of Assessment:</b>	7 <sup>th</sup> week exam 30% Projects 20% Lab Quiz 10 % Final exam 40%	
<b>8- List of References:</b>		
<b>a- Course Notes</b>	From the Moodle on <a href="http://www.aast.edu">www.aast.edu</a>	

<b>b- Required Books (Textbooks)</b>	James A. O'Brien, <i>Introduction To Information Systems</i> , 15 <sup>th</sup> edition, McGraw Hill, 2009.
<b>c- Recommended Books</b>	<ul style="list-style-type: none"> <li>▪ <b>Ralph Stair, Principles of Information Systems, Course Technology, 2007.</b></li> <li><b>Kenneth C. Laudon and Jane P. Laudon, Management Information Systems: Managing the Digital Firm – 8<sup>th</sup> Edition, Pearson Education, Inc., 2006.</b></li> </ul>
<b>d- Periodicals, Web Sites, ..., etc.</b>	

**Course Instructor:**

**Head of Department:**

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