Course Name	Advanced Information Systems			نظم المعلومات المتقدمة			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS610	**0912610**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☒ Core ☐ Elective ☐ Pre-Requisite						
Level	1st Semester	**Prerequisite**					

Course Description:

At a conceptual level, this course is designed to make the students knowledgeable of the design, implementation, control, evaluation and strategic use of modern information systems. Topics discussed include strategic uses of information systems, information systems in business functions, understanding enterprise systems, data management, basics of data warehousing and knowledge management, managers and their information needs, understanding corporate governance, E-commerce, the internet, intranets & extranets, supply chain management, trustworthy computing, IT security & cryptography, modern IT architectures including utility/service oriented model, web services, B2B and outsourcing, planning & acquisition of IT.

Course Outcomes: The students will be able to

- Identify and understand the key components of enterprise systems architecture
- Analyze and evaluate management decisions in enterprise systems
- Discuss the importance of architecture design for complex information systems
- Learn how IT affects management methods and transforms organizational and industry structures.
- Describe appropriate processes for the design and implementation of large scale information systems
- Make best use of IT in managerial decision making
- Discuss future emerging information systems concepts and technology

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Ralph Stair and George Reynolds, "Principles of Information Systems", Ninth Edition, Course Technology, 2009, ISBN: 0324665288

Reference Book(s):

- Stephen Haag and Maeve Cummings, "Information Systems Essentials", McGraw-Hill Higher Education, 2008, ISBN: 0073376752
- Effy Oz, "Management Information Systems", Course Technology, Fifth Edition, 2006, ISBN: 1418835978

Course Name	**Advanced Database Management Systems**			**نظم إدارة قواعد البيانات المتقدمة**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS611	**0912611**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☒ Core ☐ Elective ☐ Pre-Requisite						
Level	1st Semester	**Prerequisite**					

Course Description:

This course covers advanced topics in the design and management of database systems including record storage and primary file organizations, index structures and access methods for files, directory management, query processing, query optimization, transaction processing, nested transactions, concurrency control techniques, deadlock management, fragmentation and its control, integrity constraints, database recovery, distributed databases, object and object-relational databases, deductive databases and data integration in multi-databases.

Course Outcomes: The students will be able to

- Learn advanced concepts involved in performance tuning of databases
- Learn efficient retrieval of information especially when massive data storage is involved
- Get an insight to the internal working of DBMSs
- Have an insight to the issues and challenges involved in database design and management
- Learn alternate solutions to these issues and challenges

Grading	☒ **Mid-term**	**25%**	☒ **Project**	**25%**	☒ **Quizzes**	**10%**
	☒ **Final**	**40%**	☐ **Lab**		☐ **Participation**	

Textbook(s):

- Abraham Silberschatz, Henry Korth, and S. Sudarshan, “Database System Concepts”, McGraw-Hill, 2010, ISBN: 0072958863

Reference Book(s):

- Carlos Coronel, Steven Morris and Peter Rob, "Database Systems: Design, Implementation, and Management", 9th Edition, Course Technology, 2009. ISBN: 0538469684.
- David M. Kroenke and David Auer, "Database Processing", 11th Edition, Prentice Hall, 2009. ISBN: 0132302675.

Course Name	IT Infrastructure			البنية التحتية لتقنية المعلومات			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS612	**0912612**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☒ Core ☐ Elective ☐ Pre-Requisite						
Level	1st Semester	**Prerequisite**					

Course Description:

This course focuses on the concepts, models, architectures, protocols, standards, and security for the design, implementation, and management of digital networks, server architectures, server farms, cluster computing, and grid computing, storage area networks and network attached storage, data center design and implementation, development of an integrated technical architecture (hardware, software, networks, and data) to serve organizational needs in a rapidly changing competitive and technological environment, network, data and application architectures, and enterprise application integration.

Course Outcomes: The students will be able to

- Understand the capabilities as well as the strengths and weaknesses of various computational, data, networking, and software architectures
- Get an understanding of managerial issues and technologies related to interoperability: issues and technologies
- Realize how national and global standards organizations influence architectural standards, regulations, and future developments
- Design, implement and manage security and disaster recovery plans and business continuity from an overall organizational perspective

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Rich Schiesser, "IT Systems Management", Second edition, Prentice Hall, 2010, ISBN: 0137025068

Reference Book(s):

- Bill Holtsnider and Brian D. Jaffe, "IT Manager's Handbook, Getting your new job done", Second Edition, Morgan Kaufmann, 2006, ISBN: 012370488X

Course Name	**Advanced Object Oriented Design and Development**			**تصميم و تطوير كانني التوجه المتقدم**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS613	**0912613**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☒ Core ☐ Elective ☐ Pre-Requisite						
Level	2nd Semester	**Prerequisite**					

Course Description:

"Design Patterns" is a modern classic in the literature of object-oriented development, offering elegant solutions to common problems in software design. This course discusses patterns for managing object creation, composing objects into larger structures, and coordinating control flow between objects. After introducing the students with philosophy and application of design patterns, creational design patterns are discussed. A detailed discussion on structural design patterns is followed by behavioral and concurrency patterns. Case studies are a core part of the course used to demonstrate how design patterns can be used to solve daily life problems.

Course Outcomes: The students will be able to

- Familiarize with the state-of-the-art in software engineering and object oriented
- Learn capabilities and pitfalls of object-oriented programming
- Apply various design patterns for development of object oriented systems
- Analyze, design and implement practical systems of average complexity

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Erich Gamma, Richard Helm, Ralph Johnson and John M. Vlissides, "Design Patterns: Elements of Reusable Object-Oriented Software", Addison-Wesley Professional, 2007, ISBN: 0201633612

Course Name	Research Methodology		طرق البحث				
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS615	**0912615**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☒ Core ☐ Elective ☐ Pre-Requisite						
Level	2nd Semester	**Prerequisite**					

Course Description:

The philosophy of science, basics of doing research including problem solving and research, defining the research problem, writing a literature review, theory and theory building, conceptual modeling and research design, case study research, survey and observations, primary data collection, experiments, histories and simulations, interventions including benchmarking, action research and pilot studies, sampling and measurement, instrument and questionnaire design, analysis methods including qualitative, quantitative and mixed data analysis, grounded theory, usability evaluations, research ethics, peer review process, reporting and publishing including displaying data and writing up results.

Course Outcomes: The students will be able to

- Develop and apply fundamental research skills, including literature reviews, collection and analysis of data and designing a research project
- Identify a research topic and justify its worth
- Improve understanding of the research process and creation of knowledge
- Study research approaches, tools, techniques and methodologies used in computing research
- Develop research writing and presentation skills

Grading	☒ **Assignments**	**20%**	☒ **Micro thesis**	**50%**	☐ **Discussions**	
	☒ **Presentation**	**30%**				

Textbook(s):

- The Craft of Research: Chicago Guides to Writing, Editing and Publishing by Booth, Colomb & Williams, 3rd Edition, University of Chicago Press, 2008. ISBN: 0226065669.

Reference Book (s):

- Statistics for Engineers and Scientists by William Navidi, 2nd Edition, McGraw-Hill, 2007. ISBN: 0073309494.
- Avison, D. and Pries-Heje, J. "Research in Information Systems: A Handbook for Research Students and Their Supervisor", Elsevier Butterworth Heinemann, Oxford, 2005, ISBN: 0750666552

Course Name	**Information Systems Security**			**أمن نظم المعلومات**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS620	**0912620**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912610			

Course Description:

The security design principles are discussed and applied to eliminate typical vulnerabilities in implementing an information system. An in depth study of several emerging threats is given including next-generation phishing, drive-by-pharming, online extortion, multi-application botnets, crimeware, mobile worms, and VoIP security. Emerging defense techniques are also discussed with all threats. The latest web vulnerabilities covered in this course include client-state manipulation, cookie-based attacks, SQL injection, cross domain attacks (XSS/XSRF/XSSI), and HTTP header injection. Security issues that arise specifically in Web 2.0 applications taking advantage of AJAX, XmlHttpRequest, and mash-ups are discussed. The course also covers Same-Origin-Policy (SOP) violations that can occur due to DNS rebinding, timing, and user tracking attacks.

Course Outcomes: The students will be able to

- Learn security design principles and best practices to develop secure information systems
- Get a technical walk-through of several emerging threats
- Learn emerging defenses that are just on the horizon to mitigate such vulnerabilities
- Carry out effective research in the domain of information systems security

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Ross J. Anderson, "Security Engineering: A Guide to Building Dependable Distributed Systems", Second Edition, Wiley, 2008, ISBN: 0470068523

Reference Book(s):

- Charles P. Pfleeger and Shari Lawrence Pfleeger, "Security in Computing", Fourth Edition, Prentice Hall, 2006, ISBN: 0132390779
- Sean Smith and John Marchesini, "The Craft of System Security", Addison-Wesley Professional, 2007, ISBN: 0321434838

Course Name	Consulting in Information Systems		الاستشارات في مجال نظم المعلومات				
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS621	**0912621**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912610			

Course Description:

This course investigates the tools used by and skills necessary for information systems consultants. The course will provide with knowledge of various phases of consulting life cycle. Students will learn business needs and developing information systems and technology solutions. Students will also learn various consulting tools and techniques to develop consulting. This course requires students to have a desire to expand their backgrounds to meet the growing demands of today's global business environment. The primary intention of this course is to provide solid foundation to become both external and internal consultants in the marketplace. The course will use class lectures followed by team oriented project approach and presentations to share their experience in information systems and consulting.

Course Outcomes: The students will be able to

- Understand the role and responsibilities of an IS consultant
- Develop skills to have greater impact in order to make better use of specialist or technical knowledge
- Gain knowledge for dealing with the real-life hurdles that consultants face and use various professional consulting tools and techniques

Grading	☒ **Mid-term**	**20%**	☒ **Project**	**30%**	☒ **Quizzes**	**15%**
	☒ **Final**	**30%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- William S. Davis and David C. Yen, "The Information System Consultant's Handbook Systems Analysis and Design", CRC Press , 2008, ISBN: 0849370014

Course Name	**Designing and Implementing Data Warehouses**			**تصميم و تنفيذ مستودعات البيانات**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS622	**0912622**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912611			

Course Description:

This course provides students with the technical skills required to plan, implement, and maintain a data warehouse using a DBMS such as Oracle Warehouse Builder. Key topics include design a data warehousing system; implement a database designed with a star schema, gather data from primary data sources, transform data, and load data in to a DBMS. Students will create a cube using OLAP and analyze cube data using client applications.

Course Outcomes: The students will be able to

- Get a familiarity with the typical data warehouse components and architecture
- Get an understanding of the practical uses of data warehousing
- Get knowledge of the theories and principles of data warehousing
- Develop an understanding of the techniques and tools used to design a data warehouse
- Understand the theory and principles of data warehousing with regard to the practice of decision support

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- W. H. Inmon, "Building the Data Warehouse", Second Edition, Wiley, 2005, ISBN: 0764599445

Reference Book(s):

- Ralph Kimball and Joe Caserta, "The Data Warehouse ETL Toolkit: Practical Techniques for Extracting, Cleaning, Conforming, and Delivering Data", Wiley Publishing, Inc. 2004, ISBN: 0764567578
- Fon Silvers, " Building and Maintaining a Data Warehouse, Auerbach Publications, 2008, ISBN: 1420064622

Course Name	**Advanced Web Based Systems**			**الأنظمة المبنية على الويب المتقدمة**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS623	**0912623**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912613			

Course Description:

The course provides a process-oriented view of the organization and its relationships with suppliers, customers, and competitors: using processes for achieving strategic objectives and transforming the organization; process analysis, design, implementation, control and monitoring; processes as a means of achieving compliance; impact on work; the role of Enterprise Resource Planning (ERP), Supply Chain Management (SCM), and Customer Relationship Management (CRM) systems, structured and unstructured processes, impact on work practices and the role of systems in transforming organizations and markets in a global perspective.

Course Outcomes: The students will be able to

- Learn how to evaluate and understand the role of processes in a competitive environment
- Learn how processes integrate the internal functions of the firm and allow it to interact with its environment
- Recognize, model, and improve processes to achieve efficiency and compliance objectives
- Understand the role of ERP, SCM, and CRM systems as components of the enterprise architecture
- Understand the impact of automation on work practices

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

`Textbook(s):

- Dave Chaffey, "E-Business and E-Commerce Management: Strategy, Implementation and Practice", Fourth Edition, Prentice Hall, 2010, ISBN: 0273719602

Reference Book(s):

- Daniel Amor, "The E-business (R)evolution", Second Edition, Prentice Hall, 2001, ISBN: 0130670391

Course Name	**Enterprise Resource Planning**			**تخطيط موارد المنشأة**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS624	**0912624**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912612			

Course Description:

This course covers concepts in Enterprise Resource Planning (ERP). The focus of this course is to show how ERP systems integrate all major business functions (finance, human resources, manufacturing, and inventory etc.) into an enterprise wide shared information systems network. It is also emphasized that by making information available across traditional business unit boundaries, efficiency improves and gives rise to new strategic opportunities. Ultimately, such intranet information systems can be interlinked with other enterprise business partners (e.g. vendors, suppliers, and financial institutions) to form powerful resource planning networks. This course will explore the technology and strategic use of enterprise information systems.

Course Outcomes: The students will be able to

- Develop a conceptual understanding of ERP and business process reengineering
- Understand ERP implementation life cycle stages and options of various platforms
- Understand critical factors guiding selection and evaluation, strategies for ERP systems
- Develop strategies for integrating ERP into organizational culture

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Bret Wagner and Ellen Monk, "Enterprise Resource Planning", Third Edition, Course Technology, 2008, ISBN: 1423901797

Reference Book(s):

- Mary Sumer, "Enterprise Resource Planning", Prentice Hall, 2004, ISBN: 0131403435

Course Name	**Information Systems Audit and Control**			**تدقيق و رقابة نظم المعلومات**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS625	**0912625**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912610			

Course Description:

Businesses of all sizes have desire to obtain a competitive advantage in the development of IT capabilities. The increasing use of technology in businesses has led information security threats and their subsequent audit and control at management level within an organization. This course aims at providing students with an understanding of the threats to information, information systems and imparting an awareness of controls that may be applied to reducing risk from the threats. The students should be able to have an awareness of the importance of good security policy at management level.

Course Outcomes: The students will be able to

- Understand the common security threats that threaten information systems in organizations
- Analyze and assess the risk exposures of particular assets within organizations
- Implement a practical audit strategy to identify, analyze and manage security risks in information systems
- Appraise the use of audit techniques to ensure appropriate use of controls

Grading	☒ **Mid-term**	**20%**	☒ **Project**	**20%**	☒ **Quizzes**	**15%**
	☒ **Final**	**40%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Davis C., Schiller M., Wheeler K., "IT Auditing", McGraw Hill, 2007, ISBN: 0072263431

Reference Book(s):

- Chris, D., Mike, S., Kevin, W., "IT Auditing: Using Controls to Protect Information Assets", McGraw-Hill Osborne Media, 2006, ISBN: 0072263431
- Frederick, G., Daniel,M., Carol, G, Sandra, S., "Information Technology Control and Audit", Second Edition, Auerbach Publications, 2004, ISBN: 0849320321

Course Name	**Managing Information Systems Functions**			**إدارة وظائف نظم المعلومات**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS626	**0912626**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912610			

Course Description:

This course focuses on managing the IS functions to further the policy and strategies of the enterprise. Topics to be covered include strategic uses of Information Technology, strategic information systems planning, designing corporate IT architecture, managing corporate information resources, managing partnership-based IT operations, technology for developing effective systems, management issues in system development.

Course Outcomes: The students will be able to

- Learn to design effective/efficient IS organizational processes
- Assess the impact of emerging technologies
- Understand human resource needs and management methods
- Get familiarity with IS governance alternatives
- Understand the role of the CIO

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**40%**	☐ **Lab**		☒ **Participation**	**15%**

Textbook(s):

- Barbara McNurlin, Ralph Sprague and Tung Bui, "Information Systems Management", Eighth edition, Prentice Hall, 2009, ISBN: 0132437155

Reference Book(s):

- Keri E. Pearlson and Carol S. Saunders, "Managing and Using Information Systems: A Strategic Approach", Fourth Edition, Wiley publishers, 2009, ISBN: 0470343818

Course Name	Information Retrieval and Extraction			استرجاع واستخلاص المعلومات			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS627	0912627	3		3	0	3
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			Prerequisite				

Course Description:

This course will cover traditional material, as well as recent advances in Information Retrieval (IR), the study of indexing, processing, and querying textual data. Basic retrieval models, algorithms, and IR system implementations will be covered. The course will also address more advanced topics in "intelligent" IR, including Natural Language Processing techniques, and "smart" Web agents. Topics: Introduction to IR models and methods, Perl tutorial, Text analysis / Web spidering, Text properties, Vector-based model, Boolean model, Probabilistic model; other IR models, IR evaluation and IR test collections, Relevance feedback, query expansion, Web search: link based and content based, Query-based and content sensitive link analysis, Search engine technologies, Search engine user interfaces, Text classification and clustering.

Course Outcomes: The students will be able to

- Get familiar with indexing, processing, and querying textual data
- Use basic retrieval models, algorithms, and IR system implementation
- Understand advanced topics in intelligent IR, including natural language processing techniques, and smart web agents

Grading						
	☒ Mid-term	25	☒ Project	15	☒ Quizzes	10
	☒ Final	40	☒ Assignments	10	☐ Participation	

Textbook(s):

- Ricardo Baeza-Yates and Berthier Ribeiro-Neto, "Modern Information Retrieval, The Concepts and Technology behind Search", Second Edition, Addison-Wesley Professional, 2011, ISBN: 0321416910

Reference Book(s):

- D. A. Grossman and O. Frieder, "Information Retrieval: Algorithms and Heuristics", Second Edition, Springer, 2004, ISBN: 1402030045

Course Name	**Multimedia Systems Design**			**تصميم نظم الوسائط المتعددة**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS628	**0912628**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**				

Course Description:

Interactive multimedia systems are becoming increasingly widespread in many domains including games, arts and business. This subject introduces fundamental principles of interactive multimedia and associated tools. Topics include digital multimedia applications, social and ethical considerations. Enabling technologies such as digital representations, hardware and software requirements, Introduction to computer graphics: vector graphics and bitmapped images, image manipulation and compression, Digitized video standards, video compression, streamed video, video editing and post-production, Captured animation and image sequences, key frame and 3-D animation, Digitized sound, sound compression, sound format, combining sound and picture, hypermedia, synchronization-based presentation, Multimedia and Networks: computer network and transport protocols, multicasting, quality of service, server-side computation, protocols applications.

Course Outcomes: The students will be able to

- Get background knowledge of the different components of digital media, text, images, sound & video, their representations and media carriers
- Get practical knowledge in processing digital media and integration of its components
- Design and program digital media applications
- Acquire necessary knowledge to work in a team of digital media designers and developers

Grading	☒ **Mid-term**	**25**	☒ **Project**	**25**	☒ **Quizzes**	**10**
	☒ **Final**	**40**	☐ **Lab.**		☐ **Participation**	

Textbook(s):

- Wong Y-L, "Digital Media Primer", International Edition, Pearson/Prentice Hall, 2009, ISBN: 0132239442

Reference Book(s):

- Burg J, "The Science of Digital Media", Prentice Hall, 2008, ISBN: 0132435802
- Wong Y-L, "Digital Art: Its Art and Science", Prentice Hall, 2009, ISBN: 0131757032
- Chapman, N. and Chapman, J. "Digital Multimedia", Third Edition, John Wiley & Sons, 2009, ISBN: 0470512164.

Course Name	**Knowledge Management**			**إدارة المعرفة**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS629	**0912629**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912610			

Course Description:

This course introduction to knowledge and knowledge management concepts, and processes in organizations. It also addresses knowledge modeling concepts such as ontologies, structures, relationships, organization modeling, communication, knowledge transfer and total knowledge Management. It addresses knowledge management and knowledge modeling from an information system perspective by focusing on analyzing information and knowledge process in organizations, explicit and implicit tacit knowledge in software systems and in human social systems, languages and models for codifying knowledge. Knowledge modeling, ontology and semantic issues, the knowledge management infrastructure, layers, teams, blueprints and leadership.

Course Outcomes: The students will be able to

- Understand the fundamental concepts in the study of knowledge and its creation, acquisition, representation, dissemination, use/re-use, and management
- Appreciate the role and use of knowledge in organizations and institutions, and the typical obstacles that KM aims to overcome
- Comprehend the core concepts, methods, techniques, and tools for computer support of knowledge management
- Apply and integrate appropriate components and functions of various knowledge management systems
- Evaluate current trends in knowledge management and their manifestation in business and industry

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Ashok Jashapara, "Knowledge Management: An Integrated Approach", Second Edition, Financial Times Press. 2011, ISBN-13: 9780273726852.
- Amrit Tiwana, "Knowledge Management Toolkit, The: Orchestrating IT, Strategy, and Knowledge Platforms, 2/E", Third Edition, Prentice Hall, 2003, ISBN-10: 013009224X

Reference Book(s):

- Elias M. Awad and Hassan M. Ghaziri. "Knowledge Management", Prentice Hall. 2004, ISBN: 0-13-034820-1.

Course Name	**Usability Analysis and Testing**			**تحليل واختبار قابلية الاستخدام**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS630	**0912630**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912613			

Course Description:

As professionals it is important that students are able to critically evaluate user interfaces and work environment issues in relation to humans' interaction with computers. This analysis and evaluation of usability issues is the main focus of the course. Topics to be covered include usability engineering issues, human factors issues, usability testing, human computer interaction, user centered design techniques, and web interface development.

Course Outcomes: The students will be able to

- Learn methods and techniques used in analysis, evaluation, prototyping and assessment of user interface needs
- Get background knowledge and practical experiences in conducting usability studies of interactive systems
- Understand the theory behind human factors, human computer interfaces and usability engineering
- Develop skills for evaluating the requirements of a user interface considering various aspects of an environment including international issues.

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Thomas Tullis and William Albert, "Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics", Morgan Kaufmann, 2008, ISBN: 9780123735584.

Reference Book(s):

- Jeffrey Rubin, Dana Chisnell and Jared Spool, "Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests", Second edition, Wiley, 2008. ISBN: 9780470185483
- Carol M. Barnum, "Usability Testing Essentials: Ready, Set...Test!", Morgan Kaufmann, 2010, ISBN: 9780123750921

Course Name	Pervasive and Ubiquitous Information Systems			انتشار نظم المعلومات			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS631	**0912631**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912610			

Course Description:

The key element of this course is the omnipresence of information devices. These devices can be embedded into cars, airplanes, ships, bikes, posters, signboards, walls and even clothes. This course focuses on independent information devices including wearable computers, mobile phones, smart phones, smart-cards, wireless sensor-compute nodes and the services made available by them. It includes human-computer interaction using several types of elements including sensing, text, speech, handwriting and vision.

Course Outcomes: The students will be able to

- Get a sound conceptual foundation in the area of ubiquitous and pervasive computing
- Have a balanced treatment of the mechanisms and environments of ubiquitous and pervasive computing
- Conceptualize, analyze and design select classes of ubiquitous and pervasive computing systems

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Stefen Poslad, "Ubiquitous Computing: Smart Devices, Environments and Interactions", Wiley, London, 2009, ISBN: 9780470035603

Reference Book(s):

- John Krumm, "Ubiquitous Computing Fundamentals", Chapman and Hall/CRC, 2009, ISBN: 1420093606
- Adam Greenfield, "Everyware: The Dawning Age of Ubiquitous Computing", New Riders Publishing, 2006, ISBN: 0321384016

Course Name	**Decision Support Systems**			أنظمة دعم القرار			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS632	**0912632**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912610			

Course Description:

The purpose of this course is to provide students with an understanding of the key technical and managerial issues in the effective development and use of decision support systems in organizations. This course provides an overview of the theoretical and practical aspects of decision support systems (DSS). The course consists of three modules. The first module concentrates on the managerial aspects of decision-making, the role of automation in decision making, and decision models. The second module discusses the design and development of decision support systems, with an emphasis on data management. The last module addresses the integration and implementation challenges in Enterprise DSS, intelligent DSS, web-based DSS, as well as their future trends. Tools such as DPL and Expert Choice (an analytic hierarchy process-based DSS engine), and TemTec Executive Viewer (an OLAP), Enterprise Resources Planning can be used.

Course Outcomes: The students will be able to

- Get familiar with basic DSS concepts, tools and techniques
- Understand the fundamentals of DSS design and development
- Distinguish among individual, group and organizational
- Comprehend current and future DSS implementation challenges
- Gain hands-on experience by developing a small-scale DSS

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Efraim Turban, Ramesh Sharda, and Dursun Delen,, "Decision Support and Business Intelligence Systems", International Edition, Ninth Edition, Pearson Higher Education, 2011, ISBN: 9780132453233.
- S. Christian Albright, " VBA for Modelers: Developing Decision Support Systems with Microsoft Excel ", Second edition, Thompson Learning, 2007, ISBN: 0495106836

Reference Book(s):

- Daniel J. Power, "Decision Support Systems : Concepts and Resources for Managers", Quorum Books, 2002, ISBN: 9781567204971.

Course Name	**Service Oriented Computing**			**الحوسبة الموجهة للخدمات**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS633	**0912633**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**	0912612			

Course Description:

This course examines the concepts, theories, and techniques for Web services. Architectures for Web applications based on the classical publish, find, and bind triangle and formulates them at a higher level. It considers sophisticated approaches for the description, discovery, and engagement of Web services by emphasizing Web service composition. Key topics include Web Services Architectures and Standards, Enterprise architectures, service foundations (middleware, service interface, publishing, discovery and binding), service description, modeling, composition, adaptation and representation. Issues related to engagement, collaboration, selection, engineering, semantics, transactions, processes, agents, quality of service, compliance, and trust are also addressed.

Course Outcomes: The students will be able to

- Understand advanced concept of information architecture, web-based applications and service oriented computing
- Learn concepts necessary to publish, find, and bind architecture for Web services and to use the corresponding standards, in particular, WSDL, SOAP, UDDI
- Get an ability to conceptually model Web services and formulate specifications of them in the RDF and OWL
- Develop concepts of Web service matchmaking, registration and discovery techniques

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**50%**	☐ **Lab**		☒ **Participation**	**5%**

Textbook(s):

- Munindar P. Singh Michael N. Huhns, "Service-Oriented Computing: Semantics, Processes, Agents", John Wiley & Sons, 2005. ISBN 0-470-09148-7.
- Deitel, P. J. and Deitel, H. M. " Visual C# – How to Program", Third edition, Pearson Education, Inc, 2009, ISBN 0-13-605322-X.

Reference Book(s):

- Paul Allen, "Service Orientation: Winning Strategies and Best Practices". Cambridge, UK: Cambridge University Press, 2006, ISBN: 0521843367

Course Name	**Special Topics in Information Systems**			**دراسات خاصة في نظم المعلومات**			
Course Information	Course Code	Course No	Credit Units	Contact Hours	Lec.	Lab.	Total
	IS634	**0912634**	**3**		**3**	**0**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network						
Track	☐ Core ☒ Elective ☐ Pre-Requisite						
Level			**Prerequisite**				

Course Description:

This course focuses on providing students with the latest knowledge in different subjects of the IS field and its related areas.

Course Outcomes:

The students will be able to:

- Have an understanding of the latest challenges and issues of the domain of information systems
- Get familiarity with the latest technologies used in information systems
- Find open research problems in information systems

Grading	☒ **Mid-term**	**30%**	☐ **Project**		☒ **Quizzes**	**15%**
	☒ **Final**	**40%**	☐ **Lab**		☒ **Participation**	**15%**

Textbook(s):

- Barbara McNurlin, Ralph Sprague and Tung Bui, "Information Systems Management", Eighth edition, Prentice Hall, 2009. ISBN: 0132437155

Reference Book(s):

- Keri E. Pearlson and Carol S. Saunders, "Managing and Using Information Systems: A Strategic Approach", Fourth Edition, Wiley publishers, 2009, ISBN: 0470343818

Course Name	**Project Proposal**	**مقترح المشروع**	
Course Information	Course Code	Course No	Credit Units
	IS690	**0912690**	**3**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network		
Track	☒ Core ☐ Elective ☐ Pre-Requisite		
Level		**Prerequisite**	Department Approval

Course Description:

The Project Proposal emphasizes on application of the theoretical concepts of software analysis and design learned during the course work. The analysis component comprises of preparing formal Software Requirements Specifications (SRS) document including problem statement, scope, justification, requirements, cost estimation, assumptions, limitations, methodology and tools to be used in project development. The assumption should be taken in such a way that scope of the problem becomes clear and well defined in the problem statement. All the functional and non-functional requirements of the system must be identified and analyzed in the proposal. The students will be encouraged to develop/describe logical model of the proposed system based on the requirements. The design component of the course includes prototype including input and output of the proposed system.

Course Outcomes: At the end of the course, students will be able to

- Identify and define problem statement
- Define and justify scope of the problem
- Gather and analyze system requirements
- Propose an optimized solution among the existing solutions
- Practice software analysis and design techniques learned during the course work
- Develop technical report writing and oral presentation skills

Grading	☒ **Supervision & Progress Reports**			**30%**
	☒ **Project Report Evaluation**	**35%**	☒ **Project Oral Examination**	**35%**

Textbook(s):

- Lynn E. Miner & Jeremy T. Miner, "Proposal Planning and Writing", Third Edition, Greenwood Publishing Group, 2003, ISBN: 1573564982

Reference Book(s):

- Statistics for Engineers and Scientists by William Navidi, 2nd Edition, McGraw-Hill, 2007. ISBN: 0073309494.

Course Name	Project		مشروع التخرج	
Course Information	Course Code		Course No	Credit Units
	IS695		**0912695**	**6**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network			
Track	☒ Core ☐ Elective ☐ Pre-Requisite			
Level	4th Semester		**Prerequisite**	Project Proposal

Course Description:

In this course the students will be required to implement proposed design of the project. The students will review the design specification and make any necessary enhancements to synchronize the implementation details. The students will identify and learn the use of tools required for the project implementation. The students will be expected to: prepare application architecture, code, debug, document, and test the application software within suggested timeframe. A key focus of the course is to emphasize the quality of software project through various evaluation aspects such as professional coding style, documentation of code, intuitive user interface design, input validation, verification and user guide. The students will be further required to evaluate the developed system by generating test cases of the critical components of the designed model.

Course Outcomes: At the end of the project, students will be able to

- Develop a functional application based on the software design
- Apply the coding, debugging and testing tools to enhance the quality of the software
- Construct new software systems based on the theory and practice gained through this exercise
- Prepare the proper documentation of software projects following the standard guidelines
- Learn technical report and oral presentation skills

Grading	☒ **Supervision & Progress Reports**			**30%**
	☒ **Project Report Evaluation**	**35%**	☒ **Project Oral Examination**	**35%**

Textbook(s):

- Lynn E. Miner & Jeremy T. Miner, "Proposal Planning and Writing", Third Edition, Greenwood Publishing Group, 2003, ISBN: 1573564982

Reference Book(s):

- Statistics for Engineers and Scientists by William Navidi, 2nd Edition, McGraw-Hill, 2007. ISBN: 0073309494.
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Course Name	Thesis		الرسالة	
Course Information	Course Code	Course No		Credit Units
	IS700	**0912700**		**9**
Department	☐ Comp Science ☒ Information System ☐ Comp Engineering ☐ Comp Network			
Track	☒ Core ☐ Elective ☐ Pre-Requisite			
Level	4th Semester		**Prerequisite**	Department Approval

Course Description:

Student will choose a research topic under supervision of a faculty member. After approval of the thesis subject, the student needs to define objectives of the research and prepare the research proposal. In the proposal, he/she will be required to (i) conduct an exhaustive survey (ii) identify and define the problem clearly (iii) decide scope of the problem and provide its assumptions and limitations (iv) ensure the originality of the research proposal (v) suggest the approach and methodology used in the research and (vi) present the expected results. At the successful presentation of the proposal, student will be asked to submit the proposal. The student will apply the proposed methodology to solve the problem. After completion, student will submit the thesis. Then student will defend the thesis.

Course Outcomes: At the end of the thesis students will be able to

- Conduct survey of research issues
- Practice research techniques, tools and methodologies
- Work independently and take initiatives in academic or professional environment
- Develop writing and oral presentation skills

Grading		
	☒ **Thesis Evaluation**	**40%**
	☒ **Thesis Oral Examination**	**60%**

Text Book(s):

- The Craft of Research: Chicago Guides to Writing, Editing and Publishing by Booth, Colomb & Williams, 3rd Edition, University of Chicago Press, 2008. ISBN: 0226065669.

Reference Book (s):

- Statistics for Engineers and Scientists by William Navidi, 2nd Edition, McGraw-Hill, 2007. ISBN: 0073309494.