

**MASTER OF SCIENCE  
INFORMATION TECHNOLOGY**

**Program code: 1832**

***INTRODUCTION***

The department of Information Science (ISC) offers a Master of Science program in **Information Technology**. Research requirements include either thesis or non-thesis options. The curriculum has been designed to meet different needs of students from diverse non information technology related background, allowing them to reach a professional level of competency in information technology. This is accomplished through acquiring the necessary technical knowledge and managerial skills required to develop, implement, supervise or manage information technology projects.

*According to the University Council decision dated 4/2/2007, Thesis students admitted with effect from September 2007 are exempted from the comprehensive examination.*

***PROGRAM REQUIREMENTS*** (Non-thesis option in parenthesis)\*

**33(33) TOTAL COURSE CREDITS**

**12(15) COMPULSORY COURSES** (credits in parenthesis)

|          |  |     |
|----------|--|-----|
| 1832-500 | Introduction to Information Technology | (3) |
| 1832-501 | Information Technology Infrastructures | (3) |
| 1832-502 | Information Technology Management      | (3) |
| 1832-505 | Research Methodology and Seminar       | (3) |
| 1832-592 | Seminar                                | (0) |
| 1832-593 | Project                                | (3) |

**12(18) ELECTIVE COURSES\*\*** (3 credits each)

|          |   |
|----------|---|
| 1832-520 | Information Systems Security                  |
| 1832-521 | Information Technology Project Management     |
| 1832-522 | Systems Analysis and Design                   |
| 1832-523 | Enterprise Security Planning and Management   |
| 1832-524 | Web Applications and Services                 |
| 1832-525 | Strategic Planning for Information Technology |
| 1832-526 | Enterprise Intelligent Management Systems     |
| 1832-527 | Data Management, Mining, and Warehousing      |
| 1832-528 | Enterprise-wide Information Technology        |
| 1832-529 | Ethics and Laws in Information Technology     |
| 1832-530 | Economics of Information Technology           |
| 1832-531 | E-Business Systems                            |

- 1832-532 E-Governance  
 1832-550 Special Topics in Information Technology-I  
 1832-551 Special Topics in Information Technology-II

\*\*Students are allowed to take up to 6 credit hours (as part of the Elective Courses) from any 500 level courses offered by other departments at Kuwait University subject to the approval of the Graduate Program Director. Alternatively, students are also allowed to take up to 6 credit hours in other universities under Graduate Exchange Program or Study Abroad Program subject to the approval of the Graduate Program Director.

## **9 COMPULSORY COURSES**

- 1832-597 Thesis (0)  
 1832-598 Thesis (0)  
 2000-599 Thesis (9)

### ***COURSE DESCRIPTION***

**1832-500: INTRODUCTION TO INFORMATION TECHNOLOGY**  
**CR: 3**

This course introduces students to the fundamentals of Information Technology. Topics covered include the binary system, data representation and coding, data communication, data compression, information theory, transmission and storage technology, graphics, role of the Information Technology in business, Information Systems, Databases, Data Warehousing, WEB Services, Enterprise Resource Management, Decision Support Systems. Students will have hands-on training in IT development tools.

**1832-501: INFORMATION TECHNOLOGY INFRASTRUCTURES**  
**CR: 3**

This course introduces students to the components of the IT infrastructures. It covers the topics of the development and deployment of high-speed networks and application services in support of modern enterprise resource planning and management, technologies concepts include data communication, switching mechanisms, routing, data flow, network bridging, advanced network topologies, protocols, standards, server architectures, storage area networks, data center design and implementation, development of an integrated technical architecture (hardware, software, networks, and data) to serve

organizational needs, enterprise application integration, XML and Web Services. Students will have hands-on training in some programming language. Students will have hands-on training in IT development tools.

**1832-502: INFORMATION TECHNOLOGY MANAGEMENT**  
**CR: 3**

This course introduces students to the fundamentals of information management. Information technology management encompasses the activities related to the planning, organizing, acquiring, maintaining, and controlling of IT resources. Topics covered in the course include the process of managing IT in organizations, Data/Information/Knowledge Management, Utilization of IT in decision making, IT Management and Management Supported by IT, IT Economics, Managing IT Infrastructures, Information Resources Managing, System Development, and IT Control and Security, Managing Emerging Technologies, IT processes, Management of change, IT governance, Managing innovation in IT, and entrepreneurship in IT. Student will have hands-on training in database management systems. Students will have hands-on training in IT development tools.

**1832-505: RESEARCH METHODOLOGY  
AND SEMINAR  
CR: 3**

**PR: Accumulate a minimum of 9 CRs**

This course introduces first time research graduate students to the fundamental elements of research methodology. Course topics covered include an overview of discipline-related methodological approaches to research, efficient development of research theme, managing a research project, basics of research design, research documentation, data/information collection, efficient use of search engines, legal and ethical issues, protecting and exploiting research, intellectual property rights, presentation skills development, and the use of relevant research tools and technologies. The seminar will provide students an opportunity to practice critical review of a research topic and/or publication and to provide a professional presentation of the review. Each student will be assigned a topic in his/her area of research. In addition, a student will be asked to critically review the literature in his/her specific area of research. Each student will be asked to conduct a presentation using up-to-date presentation technologies.

**1832-520: INFORMATION SYSTEMS  
SECURITY  
CR: 3 PR: 1832-501**

This course introduces students to the fundamentals of information systems security. Topics covered include Elementary Cryptography, Private versus Public Key Cryptography. Security requirements and applications of security in networking, the Web, databases, operating systems, basic concepts in security legal, ethical, social, and administrative principles.

**1832-521: INFORMATION TECHNOLOGY  
PROJECT MANAGEMENT  
CR: 3 PR: 1832-502**

This course introduces students to fundamentals of Information Technology Project Management based on the recognized international standards. The course is designed to equip students with knowledge and skills needed to prepare them to be become better IT projects managers. They can apply in the IT project management. Topics covered in the course include the basic concepts of IT project management, including initiating, planning, controlling, executing, and closing projects. The course also shows how IT projects should be managed, from inception to post

implementation review. The course aims at providing students with an opportunity to acquire improved management skills and abilities to define the project scope, create a workable project plan, and manage within the budget and schedule. Students will have hands-on training in IT project management.

**1832-522: SYSTEMS ANALYSIS AND DESIGN  
CR: 3 PR: Accumulate a minimum  
of 9 CRs**

This course introduces student to the systems analysis and design principles and application. Topics covered include Systems development life cycle, analysis and design techniques, information systems planning and project identification and selection, requirements collection and structuring, process modeling, conceptual and logical data modeling, database implementation, design of the human-computer interface and data management, design of the human computer interface (HCI) System implementation and operation, system maintenance, and change management implications of systems. Students will use current methods and tools such as rapid application development, object-oriented analysis and design, prototyping, and visual development. Students will have hands-on training in UML and its related software tools. Students will have hands-on training in IT development tools.

**1832-523: ENTERPRISE SECURITY PLANNING  
AND MANAGEMENT  
CR: 3 PR: 1832-520**

The course focuses on the managerial aspects of information security in enterprises, such as access control models, information security governance, and information security program assessment and metrics. Developing security plans including a risk management plan. Developing a disaster recovery and business continuity plans. Coverage of the foundational and technical components of information security is included to reinforce key concepts. Laws and international security standards like the ISO 27000 series will introduced.

**1832-524: WEB APPLICATIONS AND  
SERVICES  
CR: 3 PR: 1832-500 & 501**

This course introduces students to the web applications and services. Topics include core technologies and standards for Web-based distributed systems, network and data standards with particular attention to HTML, XML, http,

URL and other web technologies including APIs. Also included are web services and various applications. Students will have hands-on training in web application and development

**1832-525: STRATEGIC PLANNING FOR INFORMATION TECHNOLOGY**  
**CR: 3 PR: 1832-502**

This course introduces students to the fundamental principles of strategic planning for information technology. Topics covered in this course include tactical, operational and strategic planning, the importance of strategic IT planning, developing IT strategy, business/IT Strategic alignment, developing and maintaining a strategic plan.

**1832-526: ENTERPRISE INTELLIGENT MANAGEMENT SYSTEMS**  
**CR: 3 PR: 1832-502**

This course introduces students to the fast evolving area of Enterprise Intelligent Management Systems (EIMSs). Topics covered include data transformation to knowledge and value chain, customer service management, business process analysis and design, the principles of decision support systems, intelligent tools for enterprise management, executive information systems, business intelligence systems (BI), and decision support tools in Enterprises. Theoretical concepts are applied to real-world applications.

**1832-527: DATA MANAGEMENT, MINING, AND WAREHOUSING**  
**CR: 3 PR: 1832-502**

This course introduces students to fundamentals of data management, data mining, and data warehousing. Topics covered in the course include data modeling for the enterprise, database management systems, data warehousing techniques, data mining principles for extracting information, data visualization. Students will have hands-on training in advanced database management systems. Students will have hands-on training in IT development tools.

**1832-528: ENTERPRISE-WIDE INFORMATION TECHNOLOGY**  
**CR: 3 PR: Accumulate a minimum of 6 CRs**

This course focuses on workflow management technology, value chain management, enterprise resource planning, and knowledge management. Students will have hands-on training in ERP

systems. Student will have hands-on training in IT development tools.

**1832-529: ETHICS AND LAWS IN INFORMATION TECHNOLOGY**  
**CR: 3 PR: Accumulate a minimum of 6 CRs**

This course focuses on the ethical, social, and legal implications of information technologies. Issues of privacy preservation, personnel security and ethics are covered.

**1832-530: ECONOMICS OF INFORMATION TECHNOLOGY**  
**CR: 3 PR: Accumulate a minimum of 9 CRs**

This course examines economic theories related to information technologies and systems, IT resources as commodities, Quantitative methods for cost-benefit analysis and return on information technology investment evaluation are introduced. Strategies for measuring cost factors related to information technology implementation within an organization are introduced.

**1832-531: E-BUSINESS SYSTEMS**  
**CR: 3 PR: 1832-524**

This course introduces students to the analysis and design of E-Business Systems. Topics covered include Introduction to e-business, Business models and concepts, Technology Information, E-business design, patterns and architectures, Security and payment, Marketing concepts and communication, Ethical, social and political issues, Online retailing and services, social networks, auctions and portals. Supply chain management, Customer relation management, E-procurement and e-fulfillment Systems, Business intelligence (BI), m-Business, and v-Business.

**1832-532: E-GOVERNANCE**  
**CR: 3**

**PR: Accumulate a minimum of 9 CRs**

This course introduces students to the evolving area of E-Government/Governance Topics covered include the nature of government information, the role of information policy in shaping e-government, implications of government efficiency, transparency, communication, service delivery, engagement with citizens, and information provision, collection, and preservation means of evaluating the impacts and successes of e-government, foundations required in designing,

delivering, evaluating, managing e-government, m-Government, and v-Government.

**1832-550: SPECIAL TOPICS IN INFORMATION TECHNOLOGY I**  
**CR: 3 PR: accumulate a minimum of 9 CRs**

A set of state-of-the-arts topics related to the field of Information Technology will be studied in this course.

**1832-551: SPECIAL TOPICS IN INFORMATION TECHNOLOGY II**  
**CR: 3 PR: Accumulate a minimum of 12 CRs**

A set of state-of-the-arts topics related to the field of Information Technology will be studied in this course.

**1832-592: SEMINAR**  
**CR: 0**

**1832-593: PROJECT**  
**CR: 3**

The student undertakes an independent project on a research topic of theoretical and/or experimental focus under the supervision of a faculty member listed in the supervisory list of the College of Graduate Studies. The objective is to provide the student with an opportunity to integrate and apply the knowledge gained throughout the course of study in a practical problem. The student must document the project in a scientific report following standard research writing guidelines and give a public presentation to the project examination committee.

**1832-597: THESIS**  
**CR: 0**

**1832-598: THESIS**  
**CR: 0**

**2000-599: THESIS**  
**CR: 9**