KING SAUD UNIVERSITY
COLLEGE OF COMPUTER AND INFORMATION SCIENCES
DEPARTMENT OF INFORMATION SYSTEMS

THE MASTER'S DEGREE PROGRAM

IN

INFORMATION SYSTEMS

1. Introduction

1.1 Information Systems

Information systems (IS) are a relatively young field in both practice and as an academic discipli initiated in early 1980s. However, in a short period of time, it has become a well establish recognized and accredited discipline.

Information systems have always been significant in management and organizations. Computer ba information systems are complex socio-technical entities that have taken critical roles in succes local, national and global organizations. Information systems provide support for goals of organization and its management - strategic, tactical and operational - in a timely and cost effect manner.

1.2 Information Technology

Information technology is the congregation of hardware, software, techniques and methodologies t is developed to store, process and transfer data, information, documents or knowledge. The follow are some of this rapidly changing and developing technology:

- Computers and their Peripherals
- Communication and Networking Technologies
- Systems Development Technology (e.g. CASE tools, Object Tech.)
- Database Management Systems
- Knowledge-based Systems
- Documents/Image Processing systems.

التعليق [HS1]:

Using this technology appropriately in the area of interest is one of the key concerns for a succes information system development.

2. Program Objectives

Organizational needs for information systems specialists may vary; some organizations may n highly specialized professionals in certain areas of interest to promote and develop IS products, and be involved in research. Others may need to enhance their IS environment.

Therefore, individuals completing this program must be able to:

- function competently at mature level positions;
- enter an advanced course of study (e.g. Ph.D.);
- communicate in a variety of settings using oral, written and multimedia techniques;

- think creatively in finding solutions to problems;
- use planning, implementation, and management tools in a changing environment;
- possess an awareness of management techniques, professional and ethical concepts, legal issues and strategic planning.
- possess advanced knowledge in computer technologies that are relevant to the IS disciplin

3. Program Options

The MSc. program in I.S. is based on two options:

a) Master's Degree with Thesis option (referred to as Option I)
b) Master's Degree with Non-thesis option (referred to as Option II)

IS Master's Degree Program with Thesis (Option I) is addressed to B.Sc. graduates in the field Information Systems, or in related computing fields.

IS Master's Degree Program with Non-Thesis (Option II) would be similar to several programs (MIS) in that a wide range of undergraduate degrees would be acceptable for admission. Therefore, t option degree curriculum does not specify a single prior background for students entering information systems program; they may be able to come from a variety of backgrounds. Examples engineering, sciences, technology, and business administration. However, several areas of knowle must be prerequisite to entering the program.

4. Admission and Completion Requirements

4.1 Admission Requirements for Option I (Thesis Option)

Having a B.Sc. degree in Information Systems, Computer Science, Computer Engineering, Comput or an equivalent degree is the first requirement to enter this option. However, the Department n evaluate and set prerequisites for each applicant case by case.

4.2 Completion Criteria for Option I (Thesis Option)

a) Completion of 24 credit hours (IS Master's Degree Program courses).
b) Completion of a thesis.

4.3 Admission Requirements for Option II (Non-Thesis Option)

Graduates with BA or B.Sc. degree from a minimum four-year undergraduate program may admitted to this program by fulfilling the following conditions:

a) Having structured programming skills (i.e. having completed at least one course a high-level programming language).

b) Having completed at least one B.Sc. level course in each of the following topics:
   - Systems Analysis and Design
   - Databases

- Networks

The Department may, however, set additional prerequisites for each applicant case by case.

4.4 Completion Criteria for Option II (Non-Thesis Option)

a) Completing 39 credit hours (IS Master's Degree Program courses)
b) Finishing a 3 credit-hour graduation project

4.5 Other Admission Criteria for Both Options

a) To fulfill KSU Master's Degree programs general rules and regulations.
b) To administer proficiency in the English language by scoring 450 points or above in the TOEFL or other similar tests.

5. Course Schedule

5.1 Option I (Thesis Option)

Students are expected to finish 24 credit hours course study according to the following schedule:

SEMESTER I

IS525 Object-Oriented System Development
IS533 Advanced Topics in Databases
BUS596 Decision Making Theory

SEMESTER II

IS555 Advanced Computer Networking
IS537 Artificial Intelligence and Knowledge-based Systems
BUS595 Information Systems Strategic Planning

SEMESTER III

IS511 Distributed Systems Management
IS591 Selected Topics in Information Systems
IS600 Thesis

5.2 Option II (Non-thesis Option)

Students are expected to finish 39 credit-hour course study and a 3 credit-hour project in f semesters with the following schedule:

SEMESTER I (9 credit hours)

IS525 Object-Oriented System Development
IS533 Advanced Topics in Databases
IS561 Operations Research / Quantitative Methods in Business

SEMESTER II (9 credit hours)

IS540 Software Project Management and Quality Assurance
IS550 Information and Requirements Engineering
IS562 Modeling and Simulation in Decision-making

SEMESTER III (12 credit hours)

IS511 Distributed Systems Management
IS531 Document Storage and Retrieval Systems
IS537 Artificial Intelligence and Knowledge-based Systems
IS598 Research Seminar

SEMESTER IV (12 credit hours)

IS555 Advanced Computer Networking
BUS592 Business Process Reengineering and Restructuring
IS591 Selected Topics in Information Systems
IS599 Project

Courses- Description:

Course Code: IS 511
Course Title: Distributed Systems Management
Credit Hours: 3
Course Outline:
Rationale for Distributed Systems Management (DSM), Uses and users of distributed systems, Business aspec of DSM. DSM concepts, Management functions and management services, Security and Distributed systems, Supporting services, Installation, operation and maintenance. Standards for DSM, Current practice and future directions.

Course Code: IS 525
Course Title: Object-Oriented Systems Development
Credit Hours: 3
Course Outline:
Definitions of Class and Object, Key characteristics of Object-Oriented (OO) method. Object-Oriented project life cycle, Mixing of methodologies in an OO project. Managing OO projects, OO software reuse, Critical success factors for OO software projects. OO analysis, OO design, CASE for OO .

Course Code: IS 531
Course Title: Document Storage and Retrieval Systems
Credit Hours: 3
Course Outline:
Information Systems types-An overview: Information Retrieval Systems, DBMS, MIS, Decision Support Systems, Dialog Systems. Fundamentals of Retrieval Systems: Adjacency and term frequency features, Text analysis and automatic indexing, Thesaurus rules and construction, Retrieval evaluation. Document Storage technology and techniques. Emerging technology: Hypertext systems, Multimedia and hypermedia Systems, Hardware requirements.

Course Code: IS 533
Course Title: Advanced Topics in Databases
Credit Hours: 3
Course Outline:
Database Systems: Semantic data modeling, Object-oriented databases, Query optimization, Semantic Integrity. Distributed Databases (DDB), Data fragmentation and distributed transparency, Distributed Query processing, Concurrence control methods: Serializability in a DDB and the two-phase locking Method, Concurrence control based on timestamps, the two-phase COMMIT protocol. Recovery

Management.

Course Code: IS 537
Course Title: Artificial Intelligence and Knowledge Based Systems
Credit Hours: 3
Course Outline:
Artificial Intelligence (AI) problem-solving concepts, Knowledge-based systems (KBS) defined, KBS Domain of applications. Problem formulation and state space search. Knowledge representation: Rules, Semantic nets and frames. Knowledge acquisition techniques. Deduction with formal logic. Rule-based Systems. Inexact reasoning. Expert systems (ES) Development. Building a business ES: A case study.

Course Code: IS 540
Course Title: Software Project Management and Quality Assurance
Credit Hours: 3
Course Outline:
Preparing for project: Project financial analysis and risk evaluation, Procurement models, Proposal Strategies, technical, management and cost proposal. Project planning. Managing the project design Effort and team: Preparing the system design, functional, and program specification; Technical quality assurance, Managing the project's implementation and acceptance phases. Post-completion analysis. Advanced project management techniques. Software quality assurance and control, Software metrics.

Course Code: BUS 595
Course Title: Information Systems Strategic Planning
Credit Hours: 3
Course Outline:
The evolving role of Information Systems (IS) and Information Technology (IT) in organizations. An Overview of business strategy concepts, Strategic IS planning, IS strategic analysis, Determining the Business IS strategy. Strategic management of IS/IT: Organization, resources, and administration. Managing the application portfolio, Application management: Investment, priority setting, development And servicing approaches.

Course Code: BUS 592
Course Title: Business Process Reengineering and Restructuring
Credit Hours: 3
Course Outline:
What is business process reengineering, Guidelines, Planning phase, Redesign phase, Transition phase, Implementation phase. Total quality management (TQM) techniques, How TQM and Reengineering differ. Desktop computing and LANs, How reengineering improves an organization's efficiency. The ISO 9000 and TQM, Achieving TQM and the ISO 9000 directives.

Course Code: IS 550
Course Title: Information and Requirements Engineering
Credit Hours: 3
Prerequisite: None
Course Outline:
Foundations of Information Engineering; Information Planning Components ; Requirements Engineering; M modeling and Modeling; Method Engineering; Method Engineering Support.

Course Code: IS 555
Course Title: Advanced Computer Networking
Credit Hours: 3
Prerequisite: None
Course Outline:
Overview of Computer Networking and the Internet; Link Layer and Local Area Networks; Network Layer ar Routing; Transport Layer Protocols; Application Layer Protocols; Multimedia Networking, Security in Computer Networks.

Course Code: IS 561
Course Title: Operations Research / Quantitative Methods in Business
Credit Hours: 3

Course Outline:
Quantitative analysis and the decision making process, Principles of modeling, Data gathering and Preparation, Model solution. Linear Programming models. Project Scheduling: PERT- CPM. Assignment and Transportation models. Game theory and management games.

Course Code: IS 562
Course Title: Modeling and Simulation in Decision Making
Credit Hours: 3
Course Outline:
Principles of simulation: Model building, handling time in models, Model attributes and parameters. Simulation languages and systems. Business application: Finance, Production, Inventory. Simulation of human decision-making, AI and simulation. Corporate simulation models and case studies.

Course Code: BUS 596
Course Title: Decision Making Theory
Credit Hours: 3
Course Outline:
The course focuses on the process of making and implementing management decisions. It develops the Basic elements involved in decision making and integrate them in a systematic theory of decision making Under uncertainty. The course introduces the student to the problem of measurement uncertainty, decision Programming, expected values and utility criteria, subjective probability assessment, simulation, value of Information and risk taking.

Course Code: IS 591
Course Title: Selected Topics in Information Systems
Credit Hours: 3
Course Outline:
Information Systems and Technology are evolving fast. This course intends to introduce special topics Of current interest of IS/IT. Topics covered in this course will be determined by the department and may Be conducted by more than one instructor.

Course Code: IS 598
Course Title: Research Seminar
Credit Hours: 3
Course Outline:
The student is asked to survey and present the theoretical and technical aspects of some topics to be agreed up With the tutor. An oral presentation and a written report are required.

Course Code: IS 599
Course Title: Project
Credit Hours: 3
Course Outline:
The aim of this project is to bridge the gap between the academic study and training needed by industry And businesses. Students are initiated to work under close faculty supervision, on real-world problems Of sufficient magnitude. Project implementation and documentation are main concerns. The final report shoul be comprehensive, well written and organized to reflect an effective approach to carry out the work involved.