IS 101 Introduction to Information Technology

(For non-IS and CS majors) Credits: 2 (2,0,1). Prerequisite: None.

A survey of computers and information technology and their applications in society. Topics covered include: database applications and implications, telecommunications and networking, artificial intelligence, graphics, hypermedia, and multimedia. Computers at work, at home, and at schools. Computer security and risks. An outlook on computers current and future impacts on individuals, business, and society as a whole. Students are introduced to simple Web page design and development with tools.

IS 201 Introduction to Information Systems

Credits: 3 (3,1,0). Prerequisite: CS 101.

An overview of information systems. Introduction to systems and development concepts, information technology, and application software. Information use in organizations. The competitive advantage, timeliness, and improvement in quality which information technology provides.

IS 223 Database Management Systems

Credits: 3 (3,1,0). Prerequisite: IS 201.

Management of an organization's data needs. Emphasis is on management and implementation issues pertinent in a business information systems environment. Topics include data access methods; relational, hierarchical, and, network database management systems; query languages; database design and performance; data administration; and, data dictionaries.

IS 225 Systems Analysis and Design I

Credits: 3 (3,1,0). Prerequisite: IS 201.

An overview of systems analysis and design. Concepts and methods used in the analysis, design, and deployment of information systems. Explore the major issues at each stage in the system development life cycle, including requirements analysis, logical design, functional design, and implementation. Technical tools such as data flow diagrams, entity-relationship diagrams, and CASE tools are introduced.
IS 325 Systems Analysis and Design II

Credits: 3 (3,1,0). Prerequisite: IS 223, IS 225.

Advanced systems analysis and design with an emphasis on object oriented or other modern methodologies. The latest data analysis and design methods and tools are introduced and compared with traditional analysis and design methods and tools. Students take on a project analyzing and designing a business system making use of available CASE tools.

IS 330 User Interface Design and Development

Credits: 3 (3,0,1). Prerequisite: CS 210, IS 225.

This course is intended to introduce students to the principles, theories, methods, techniques, patterns, and processes behind professional user interfaces design, prototyping, implementation, and evaluation. The topics covered in the course include the cognitive and perceptual constraints that affect user interface design, technologies used in user interface development, the software architecture of graphical user interfaces (GUI), interface design methods, user-centered design, interaction and navigation techniques, and interface usability evaluation. The practical part of the course is supported by lab sessions.

IS 333 Information Systems Development

Credits: 3 (3,1,0). Prerequisite: IS 325.

Information systems physical design, and implementation, within a database management system environment. Students design and construct a physical system using database software. Topics include data models and modeling tools/techniques; structured and object design approaches; models for databases: relational, hierarchical, networked and object oriented design; Graphical User Interface (GUI) coding and implementation; and, client-server planning, testing, and installation. Students work in small teams applying previously learned knowledge. Students complete a major development project and are expected to present work they have accomplished to other students in the class using audio-visual tools.

IS 370 Project Management

Credits: 3 (3,1,0). Prerequisite: IS 325.

Functions, and techniques for effective management of systems development. Quality assurance, configuration management, and, alternative planning strategies. System requirements definition; scheduling, size, and cost estimation; risk analysis; and, effective project leadership. Tools for planning and controlling of project development.
IS 421 Operations Research

Credits: 3 (3,0,0). Prerequisite: STAT 101, MATH 101 or MATH 111.

This course focuses on the fundamental concepts, applications and techniques of management science in analytical decision making. The major topics covered include linear programming, integer programming, and, network models. Applications of these techniques in functional areas such as production, marketing, finance, and accounting are covered. Students arrive at solutions through the application of computer software packages.

IS 423 Decision Support Systems

Credits: 3 (3,1,0). Prerequisite: IS 325.

An overview (definitions, evolutions, examples, and, applications) of decision support systems. Decision theory. Organizational systems. Unstructured problem solving. Introduction to modeling techniques such as linear programming, forecasting, and, simulation. Decision support system construction. Introduction to group decision support systems, executive information systems, and expert systems.

IS 444 Data Warehousing

Credits: 3 (3,0,0). Prerequisite: IS 223.

An overview of data warehousing (definitions, evolutions, trends, and applications). Aspects of planning, designing, developing, implementing, and administering a data warehouse are introduced. Data warehousing as a valuable decision making tool, and a means for gaining a competitive advantage.

IS 451 Knowledge-Based Systems

Credits: 3 (3,0,0). Prerequisite: IS 325.

An overview of Knowledge based and expert systems, their use as an organizational decision making tool and a method for saving valuable knowledge. Fundamental techniques for developing knowledge-based systems. Topics covered include, blackboards; inference engines; knowledge engineering; knowledge acquisition; and, rule-based systems.

IS 464 Health Information Systems

Credits: 3 (3,0,0). Prerequisite: BUS 373.

An overview of health information systems (definitions, evolutions, trends, and, applications). Computerized patient records, medical decision support systems, clinical information systems, Internet-based medical decision support systems, and computer based training for health professionals and patients.
IS 465 Geographic Information Systems

Credits: 3 (3,0,0). Prerequisite: BUS 373.

An overview of geographic information systems (GIS) (definitions, evolutions, trends, and, applications). Sources of information on GIS; map information; presenting maps as numbers; structuring maps; formats for GIS data; analog to digital maps; spatial analysis, and GIS software.

IS 470 Information Systems Total Quality Management

Credits: 3 (3,0). Prerequisite: IS 370.

Overview of Total Quality Management (TQM); the role of total quality management within organizations; the contribution of TQM to the high quality services of the IS department as well as the parent organization; business planning and process reengineering; and, applying an Information Systems quality strategy.

IS 484 Computer Modeling and Simulation

Credits: 3 (3,0,0). Prerequisite: CS 210 and STA 101.


IS 489 Selected Topics in Information Systems

Credits: 3 (3,0,0). Prerequisite: Instructor consent.

This course covers topics in the information systems discipline, which are not covered by the other information systems courses. The students are encouraged to propose topics for this course.

IS 490 Internship in Information Systems

Credits: 3 (---). Prerequisite: Advisor consent.

The student is asked to spend 2 months (around 300 working hours) in an approved company or institute. It is up to the student to choose the place he wishes to enroll in but nevertheless, prior approval of the department is required. The practical training carries a '3 credit hours weight and has normal grading (A, B,).
**IS 492 Cooperative Education**

Credits: 10 (---). Prerequisite: Department consent

This course is elective (on the student part) and selective (on the department part) track subject to the approval of the department. It carries a 10 credit hours weight and has normal grading (A, B, etc.). Students allowed to take this track will be waived from the following courses: IS 490, IS 498, IS 499, and a free-elective course. Typically a coop program will last 7 months (at least 1200 working hours) and will span one summer and one regular semester. Prior approval of the department is required. Furthermore, close supervision by both the department and the company is maintained to ensure that the student is following the proposed work plan.

**IS 494 Industry Link**

Credits: 3 (---). Prerequisite: Department consent.

This is an elective course that follows a pre-planned program administered by the college/department. It involves spending sometime in several local, and possibly outside computing institutions and companies, and/or enrolling in their orientation programs. The objective of the course is to expose the student to various work environments in the leading industry and public computing institutions. The course carries 3 credit hours of normal grading points.

**IS 498 Senior Project I**

Credits: 1 (---). Prerequisite: Instructor consent and completion of 90 credit hours.

A management information systems application development project applying previously learned concepts and methods, substantial and suitable in nature, under the supervision of a faculty member. The senior project consists of a sequence of two courses: IS 498 and IS 499. In IS 498, the student is typically expected to study a problem, analyze and determine the requirements, and design the solution for a system to be developed in a database management system environment or a business programming environment.

**IS 499 Senior Project II**

Credits: 3 (---). Prerequisite: IS 498.

This course is a continuation of IS 498. The student is typically expected to carry the management information system application construction, integration, testing, evaluation and tuning, delivery, and user training.
I. COMPUTER SCIENCE COURSES (College Requirements)

CS101 Computer Programming I

Credits: 4 (3, 1, 2). Prerequisite: None.

The basic programming and problem solving concepts. Emphasis is on techniques of problem analysis and the development of algorithms and programs. An introduction to modern object-oriented programming concepts.

CS102 Computer Programming II

Credits: 3 (3, 1, 0). Prerequisite: CS 101.

An intermediate level object-oriented programming concepts. Some sophisticated uses of object-oriented concepts (inheritance, polymorphism, method overloading, and multiple inheritance of interfaces) and techniques for building systems of multiple interacting components.

CS 210 Data Structures and Algorithms

Credits: 3 (3, 1, 0). Prerequisite: CS 102.

The fundamental data structures and their effective use in a variety of applications. Emphasis is on data structure abstraction and choice, modeling of real problems, and implementation for obtaining an efficient algorithm for solving a given problem. The implementation and analysis of important algorithms for sorting, searching, string processing, geometric applications, graph manipulation, and matrix operations.

CS 175: Digital Logic and Computer Organization

Credits: 3 (3, 1, 0). Prerequisite: CS 101

This course is an introduction to computer organization and Digital Logic. It describes how computers are organized and programmed at different abstraction levels. It covers a wide range of topics in both computer hardware organization. This knowledge is a key factor in preparing the student to understand how computers work in subsequent courses.
CS 285 Discrete Mathematics for Computing

Credits: 3 (3, 1, 0). Prerequisite: CS 210, STAT 101


CS 330 Introduction to Operating Systems

Credits: 3 (3, 1, 0). Prerequisite: CS 210, CS251.

An introductory study of evolution, services, and structure of operating systems. It covers the basic concepts of operating system design and implementation an management of system resources such as Central Processing Unit (CPU), Input/Output (I/O) devices, memory, and software. Examples given from modern operating systems such as Unix and Windows-driven operating systems. The students are given practical hands-on experience in implementation and testing of some components of small multi-programmed operating systems.

CS 331 Data Communication and Computer Networks

Credits: 3 (3, 1, 0). Prerequisite: CS 210.


II. BUSINESS COURSES

ACC 101 Introduction to Financial Accounting

Credits 3 (3,1,0) Prerequisite: None

This course introduces the student to the basic accounting concepts, the operation of accounting systems, and interpretation of financial statements in business firms. Topics covered include the need for accounting information, concepts underlying the preparation of financial statements in business firms, the accounting cycle, and other measurement and disclosure issues.
MKT 301 Principles of Marketing
Credits 3 (3,0,0) Prerequisite: BUS 101

Principles of Marketing (MKT 301) takes a theoretical and practical approach to marketing, it is an introductory course, which covers the basic marketing principles. Special Emphasis is given to the marketing mix: product, price, placement, and promotion. Areas covered in the course include: Strategic Planning & Marketing Process, Marketing Research, Consumer & Business Buyer Behavior, Market Segmentation, Targeting Positioning & Marketing Mix, Product & Services Strategy, Pricing Consideration & Strategies, Distribution Channels, Retailing & Wholesaling, Integrated Marketing Communication, Advertising & Public Relations, Personal Selling, Sales Promotion, Direct and On-Line Marketing, Marketing in Saudi Arabian’s Business Environment, Career Planning in Marketing and related topics.

FIN 301 Principles of Finance
Credits 3 (3,0,0) Prerequisite: BUS 101, ACC 101

This course is an introduction to financial management and finance functions. Topics include financial analysis, planning and control, time value of money, risk analysis, valuation, capital budgeting, cost of capital, acquisition of fund through borrowing, stock issue, and dividend policies. The course is a prerequisite to all higher finance courses.

Bus 101 Introduction to Business Administration
Credits 3 (3,0,0)* Prerequisite :None

This course will describe the different areas and sciences of Business Administration. What does the term business mean? What is management? Why is it essential to the organization? What should the managers do in an organization? How does decision making process relate to different functional areas of management? The course would answer these and more questions. Besides students will also be exposed to different functional areas of management like human resource management, production management, marketing management, financial management etc. Further, new concepts will be introduced and discussed such as TQM (Total Quality Management), Downsizing, SWOT analysis, and others. The discussion of different issues will be supported and reinforced by real-life examples and cases from domestic and international business world.

Bus 371 Production and Operations Management
Credits 3 (3,0,0) Prerequisite: BUS 101, STAT 101 & MATH 101 or MATH 111

This course describes the tools used in designing, operating, and controlling the production/operations function in manufacturing/service organizations. A systems approach is followed in explaining the basic operating function, the problems and decisions a manager encounters, and solution techniques and models.
Bus 373 Management Information Systems

Credits 3 (3,0,0), Prerequisite: BUS 101, STAT 101 & MATH 101 or MATH 111

This course provides students with an understanding of how information technologies (i.e., computer hardware, computer software, and computer networks) are used in organizations to support and enhance strategic goals. Emphasis is placed on technical concepts fundamental to business applications and management control of information systems.

III. MATH COLLEGE REQUIREMENT

MATH 113 Calculus II

Credits: 3 (3, 1, 0). Prerequisite: MATH 111.

Definition of the Riemann integral, the Fundamental Theorem of Calculus, the substitution rule. Simple applications of the integral. Logarithmic, exponential and hyperbolic functions. Inverse trigonometric and hyperbolic functions. Techniques of integration. L’Hopital’s Rule and Improper integrals. A brief introduction to first order different equations.

IV. COMMUNICATION COURSE

COM 301- Communication Skills

Credits: 3 (L3, T0, Lab 0)* Prerequisite: ENG 103

Communications 301 is a practical communications skills course. Students will learn how to construct (research, document and design) and deliver information and speeches. They will also gain a deeper understanding of the uses of technology in the oral communications process. During the course, the students will make several presentations. Specific topics of study include: public speaking; the speech communication process; working with others; oral presentations, formal meetings; assertion and negotiation; using charts and diagrams; user documentation; on-line manuals; varieties of public speaking; and training users.
Link:

Mapping Courses to Learning Outcomes of the IS Program