

**Title: Fundamentals of Information Systems****Catalog Description**

Today, information systems are an integral part of all business activities and careers. This course is designed to introduce students to contemporary information systems and demonstrate how these systems are used throughout global organizations. The focus of this course will be on the key components of information systems - people, software, hardware, data, and communication technologies, and how these components can be integrated and managed to create competitive advantage. Though the knowledge of how IS provides a competitive advantage students will gain an understanding of how information is used in organizations and how IT enables improvement in quality, speed, and agility. This course also provides an introduction to systems and development concepts, technology acquisition, and various types of application software that have become prevalent or are emerging in modern organizations and society.

**Learning Objectives**

Students will be able to:

- Learn how and why information systems are used today and be able to explain the technology, people, and organizational components of information systems.
- Understand globalization and the role information systems has played in this evolution.
- Learn how businesses are using information systems for competitive advantage vs. competitive necessity.
- Understand the value of information systems investments as well as learn to formulate a business case for a new information system, including estimation of both costs and benefits.
- Understand the major components of an information systems infrastructure and how to mitigate risks as well as plan for and recover from disasters.
- Understand how information systems are enabling new forms of commerce between individuals, organizations, and governments.
- Identify emerging technologies that enable new forms of communication, collaboration, and partnering.
- Understand how various types of information systems provide the information needed gain business intelligence to support the decision making for the different levels and functions of the organization.
- Understand how enterprise systems foster stronger relationships with customers and suppliers and how these systems are widely used to enforce organizational structures and processes.
- Understand how organizations develop and acquire information systems and technologies.
- Understand how to secure information systems resources, focusing on both human and technological safeguards.
- Understand how information systems raise ethical concerns in society and how information systems influence crime, terrorism, and war.

**Topics**

- Characteristics of the Digital World

- Information Systems Components
  - Hardware
  - Software
  - Data
  - Networks
  - Facilities
  - Personnel
  - Services
  - Partners
- Information Systems in Organizations
  - Characteristics of IS professionals
  - IS career paths
  - Cost/value information
  - Quality of information
  - Competitive advantage of information
  - IS and organizational strategy
  - Value chains and networks
- Globalization
  - What is globalization?
  - Technology enabled change
  - Digital divide
  - Global information systems strategies
- Valuing Information Systems
  - How information systems enable organizational processes
  - Making a business case for information systems
  - Productivity paradox of information systems
  - Investment evaluation
    - Multi-criteria analysis
    - Cost-benefit analysis
  - Identifying and implementing innovations
- Information Systems infrastructure
  - Hardware
  - Software
  - Collaboration and communication technologies
  - Data and knowledge
  - Facilities
  - Services
  - Personnel
  - Partnerships
- The Internet and WWW
  - E-business
    - B-to-C
    - B-to-B
  - Intranets, Internet, Extranets
  - E-government
  - Web 2.0
    - Technologies: e.g., Wikis, tags, blogs, netcasts, self-publishing

- New forms of collaboration: social networking, virtual teams, viral marketing, crowdsourcing
- Securing Information Systems
  - Threats to information systems
  - Technology-based safeguards
  - Human-based safeguards
  - Information systems security planning and management
- Gaining Business Intelligence From Information Systems
  - Organizational decision making, functions, and levels
    - Executive, managerial, and operational levels
    - Systems to support organizational functions and decision making
  - Information and knowledge discovery
    - Reporting systems
    - Online analytical processing
    - Data, text, and web mining
    - Business analytics
  - Application systems
    - Executive, managerial, and operational support systems
    - Decision support systems
    - Functional area information systems
    - Collaboration technologies
    - Intelligent systems
    - Knowledge management systems
  - Information visualization
    - Visual analytics
    - Dashboards
    - Geographic information systems
- Enterprise-wide Information Systems
  - Enterprise resource planning
  - Supply chain management
  - Customer relationship management
- Developing and Acquiring Information Systems Resources
  - Systems development lifecycle
  - Alternative development approaches
  - External acquisition
  - Outsourcing
  - End-user development
- Information Systems Ethics and Crime
  - Information privacy, accuracy, property, and accessibility
  - Computer crime
  - Cyberwar / cyberterrorism

### Discussion

- Information systems have become pervasive in organizations in society. It is crucial for students to gain a comprehensive understanding of what information systems are, and how they are being used to facilitate organizational processes and societal change.

- Students must understand the various types of issues involved in building, acquiring, managing, and safeguarding information systems. They must also have an understanding of various types of systems and how they aid organizational decision making, business processes, collaboration, partnerships, and so on.
- Students with practical end-user knowledge will study systems theory and quality concepts as an introduction to information technology concepts and information systems development. Structure and functions of computers, telecommunications, and other infrastructure components will be examined.
- The concept that information is of significance in stating and attaining organizational goals will be used as the basis for exploring the need for various types of information systems. Information systems will be introduced as a method for not only processing information, but as a method for enhancing communication and collaboration within and outside the organization. The dynamic nature of organizations and the necessity for growth and re-design of the organization as well as its information systems will be presented and used as the motivator for understanding information systems development methodologies and approaches for technology acquisition.
- The development path for entry level to senior information systems professionals will be explained. Professional ethical expectations and obligations will be reviewed. The necessity for personal and interpersonal communications skills will be discussed.