



## Syllabus

### CSC 142 Fundamentals of Information Systems

#### General Information

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**Date**

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**Author**

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**Department**

Computing Sciences

**Course Prefix**

CSC

**Course Number**

142

**Course Title**

Fundamentals of Information Systems

#### Course Information

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**Credit Hours**

3

**Lecture Contact Hours**

3

**Lab Contact Hours**

0

**Other Contact Hours**

0

**Catalog Description**

This course examines the impact of information systems and technology on businesses and organizations. Students will engage in real world case studies to learn how people, businesses, and technology work together to create information systems as business solutions. IT infrastructure and technology will be examined as a critical part of the solution. Students will be introduced to existing categories of information systems, and to the process for development of alternative custom solutions. The high level perspective offered by this course will help students understand how their role contributes to the overall success of an organization.

**Key Assessment**

This course does not contain a Key Assessment for any programs

**Prerequisites**

None

**Co-requisites**

None

**Grading Scheme**

Letter

## First Year Experience/Capstone Designation

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This course **DOES NOT** satisfy the outcomes applicable for status as a FYE or Capstone.

## SUNY General Education

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This course is designated as satisfying a requirement in the following SUNY Gen Ed category

None

## FLCC Values

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**Institutional Learning Outcomes Addressed by the Course**

Vitality

Inquiry

Interconnectedness

## Course Learning Outcomes

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**Course Learning Outcomes**

1. Explain the strategic role of information systems in organizations and how they impact organizational effectiveness and competitive advantage.
2. Describe key components and their functional relationships within an Information Technology Infrastructure.
3. Classify information systems found in organizations (eg. Expert Systems (ES), Decision Support Systems (DSS), Work Flow Systems).
4. Discuss ethical and legal issues surrounding the use of information systems and technologies in organizations.

## Outline of Topics Covered

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**Information Systems in the Digital Age**

- Information Systems essential to running and managing a business

- What is an information system?
- Dimensions of an information system
  - People, organizations, and technology
- Problem Solving models
- How are information systems transforming business?
- New trends
  - Mobile digital platform, big data, and cloud computing
- Enterprise Social Networking
- Business processes
- Systems for management groups
  - Transaction processing systems (TPS)
  - Decision-support systems (DSS) and digital dashboards
  - Enterprise systems for enterprise resource planning
  - Supply chain management systems (SCM)
  - Customer relationship management systems (CRM)
  - Knowledge management systems (KMS)
- E-commerce, E-business, and E-government
- Business Intelligence
  - Predictive analytics, big data analytics, dashboards, forecasts, scenarios
- Tools and technology for collaboration and social business
- Competitive advantage and information systems
- Global business and system strategies

## **IT Infrastructure**

- Components of IT Infrastructure
- Major computer hardware, data storage, input and output technologies
- Current hardware trends
  - Mobile digital platform, BYOD, virtualization, cloud computing, SaaS
- Major types of computer software
- Current software trends
  - Operating systems, GUI, open source, productivity tools, Web services
- Issues managing hardware and software technology
  - Capacity planning and scalability, TCO, outsourcing, cloud services, mobile device management
- Database management systems
- Business intelligence infrastructure

- Data warehouse, data mart, Hadoop, in-memory computing, analytic platforms
- Analytical Tools
  - OLAP, Data mining, text and Web mining
- Telecommunications, the Internet, and Wireless technology
  - Networks, network types, network technologies, signals
  - Internet architecture and governance
  - Web 2.0 technologies, VoIP, protocols
  - Wireless: Cellular systems, computer networks, and internet access
- Policies, data administration, and procedures
  - Security policies
  - Disaster recovery planning
  - Information systems audit
  - Identity management and authentication
  - Firewalls, intrusion detection systems
  - Encryption and public key infrastructure
  - Ensuring system availability
- Security and Control
  - Vulnerability: Internet, Wireless, software patches, bugs
  - Malicious software: viruses, worms, Trojan horses, and spyware
  - Hackers and computer crime
    - Sniffers, DoS attacks, botnet, identity theft, phishing, click fraud
  - Cyberterrorism and Cyberwarfare
  - Legal and regulatory requirements for electronic records management
  - Computer forensics
  - Application controls
  - Risk assessment
- Principal issues

### **Professional, Legal, and Ethical Issues**

- Five moral dimensions of the information age
  - Information rights and obligations
  - Property rights and obligations
  - Accountability and control
  - System quality
  - Quality of life
- Principles for conduct

- Responsibility, accountability, liability
- Professional Codes of Conduct
  - ACM's Code of Ethics and Professional Conduct
  - Association of Information Technology Professionals (AITP)
- Information Rights: Privacy and freedom
  - Fair Information Practices (FIP)
  - Federal Privacy Laws
  - Laws Affecting Private Institutions
- Property Rights: Intellectual property
  - Trade secrets
  - Copyright
  - Patents
- Liability
- System quality: data quality and system errors
- Quality of Life
  - Balancing power
  - Rapidity of change
  - Maintaining boundaries
  - Dependence and vulnerability
  - Computer crime and abuse
  - Reengineering job loss
  - Equity and access
  - Health risks: RSI, CVS, and cognitive decline

### **Building and Managing Information Systems**

- Core problem solving steps for new information systems
  - Define and understand the problem
  - Develop alternative solutions
  - Evaluate and choose solutions
  - Implement the solution
- Traditional systems development life cycle
  - Systems analysis
  - System design
  - Programming
  - Testing
  - Conversion

- Production and maintenance
- Purchasing application software solutions and outsourcing
- Building a Business Case
- Project Management