

CSS Core and Concentration Competencies

Part I: Core Competencies

Core competencies for the Computing and Software Systems (CSS) program are divided into two groups – general and technical competencies.

1. Core General Competencies include the following knowledge, skills and abilities:

a) Analysis & Problem Solving Skills

- Information Gathering
- Efficiency
- Systematic Thinking
- Thoroughness
- Creativity
- Learning by Doing
- Analysis of Alternatives (cost/benefit)

b) Interpersonal Skills

- Collaboration & Team Building
- Leadership
- Writing
- Speaking
- Listening
- Managing Change & Uncertainty

c) Management Skills

- Project Management
- Risk Management
- User Orientation
- Decision-Making

2. Core Technical Competencies include the following knowledge, skills and abilities:

- Business Case Justification
- Technology Evaluation & Selection
- Process Reengineering Techniques
- Technology Standards & Procedures
- Discrete Mathematics
- Data Analysis & Statistics
- Quality Assurance
- Hardware Architecture
- Software Architecture
- Social Implications of Technology
- Technical Writing
- CASE Methodologies

Part II: Advanced Competencies

The advanced areas require students to gain advanced knowledge, skills and experience in the following areas:

1. Competencies related to Applications Programming

- Requirements Definition & Analysis
- Object-oriented Programming & Design
- Functional Design
- Testing Methodologies
- Network Design
- System Performance Monitoring & Analysis
- Event Programming Methodologies
- Algorithm Design & Development
- Managing Reusable Code
- Distributed Computing
- Contemporary Programming Tools

2. Competencies related to Information Handling

- Internet Applications Development
- Electronic Data Interchange
- Knowledge-Based Systems
- Multimedia information management
- Data Compression Techniques
- Logical Data Modeling
- Data Layout and Access Techniques
- Content Management
- Graphical Design and Interpretation
- Contemporary Information Engineering Tools

3. Competencies related to Systems Analysis

- Business Case Justification
- Cost/Benefit Analysis
- Interface Design Principles
- Cognitive Psychology
- Finance
- Systems Specification Techniques
- Software Development Methodologies
- Project Estimation Techniques
- Database Design
- Database Reporting
- Rapid Prototyping
- Usability Testing
- System Administration
- Contemporary Database & Interface Design Tools
- Organizational Analysis