Master of Science in Computer Science (MSCS) curriculum
Effective SY 2012 – 2013

Prerequisites

CS 21A  Introduction to Computing I  3 units
CS 21B  Introduction to Computing II  3 units
CS 110  Data Structures and Algorithms  3 units
CS 112  Structure of Programming Languages  3 units
CS 122  Database Systems  3 units
CS 123  Introduction to Software Engineering  3 units
CS 150  Computer Architecture  3 units
CS 161  Operating Systems  3 units
AMC 124  Mathematics for Computer Science I  3 units
Ma 20.2  Calculus for Computer Scientists  6 units

I. Core Subjects (12 units)
   All graduate students are required to take the following subjects

CS 240  Advanced Data Structures and Algorithms  3 units
CS 242  Theory of Automata and Formal Languages  3 units
CS 255  Computer Architecture and Operating Systems  3 units
CS 280  Programming Languages and Paradigms  3 units

II. Tracks (18 units)
   The department offers five tracks. The courses that are currently available for each of the tracks are given below:

1. Theoretical Computer Science
   o CS 242: Theory of Automata and Formal Languages
   o CS 243: Computational Complexity
   o CS 244: Compiler Design and Theory
   o CS 268: Computer Simulations
   o CS 295: Special Topics in Computer Science
   o CS 295.L3: Special Topics: Advanced Algorithms
   o CS 295.S51: Special Topics in Computer Science: Data Mining

2. Computational Science
   o CS 268: Computer Simulations
   o CS 271: Introduction to Artificial Intelligence
   o CS 295.C2: Special Topics: Parallel Processing
   o CS 295.C5: Special Topics: Internet-Based Parallel Programming
   o CS 295.O7: Special Topics: Bioinformatics
3. **Software Engineering**
   - CS 214: User Modeling
   - CS 215: Instructional Software Design and Development
   - CS 219: Learning Theory and Instructional Software Design
   - CS 231: Introduction to Software Engineering
   - CS 232: Advanced Database Systems
   - CS 233: Advanced Systems Analysis and Design
   - CS 235: Technology and Project Management
   - CS 295.B1: Special Topics: Business Programming
   - CS 295.S12: Special Topics: Information Systems Administration
   - CS 295.S20: Special Topics: Contemporary Databases
   - CS 295.S21: Special Topics: Enterprise and Distributed Software
   - CS 295.S22: Special Topics: Accounting Information Systems
   - CS 295.S23: Special Topics: Introduction to Information Engineering
   - CS 295.S25: Special Topics: MIS Practice
   - CS 295.S28: Special Topics: Object-Oriented Programming for Mobile Systems
   - CS 295.S29: Special Topics: Financial Information Systems
   - CS 295.S32: Special Topics: Web Programming
   - CS 295.S34: Special Topics: Survey of ICT Management Standards
   - CS 295.S35: Special Topics In Management Science: Business Process Reengineering
   - CS 295.S37: Special Topics: Application in Medicine and Public Health Informatics
   - CS 295.S40: Special Topics in Software Engineering: Business Intelligence
4. **Computer Networks and Data Communications**
   - CS 250: Computer Architecture
   - CS 261: Operating Systems
   - CS 262: Networks I
   - CS 263: Networks II
   - CS 295.C2: Special Topics: Parallel Processing
   - CS 295.C5: Special Topics: Internet-Based Parallel Programming
   - CS 295.O6: Special Topics: Cryptography and Network Security
   - CS 295.S13: Special Topics: Basic Systems and Network Administration
   - CS 295.S31: Special Topics: Systems Programming
   - CS 295.S60: Special Topics: Telecommunications Technology
   - CS 295.S65: Special Topics: Survey of Contemporary Technologies

5. **Intelligent Systems**
   - CS 214: User Modeling
   - CS 217: Human-Computer Interaction
   - CS 219: Learning Theory and Instructional Software Design
   - CS 271: Introduction to Artificial Intelligence
   - CS 295.S37: Special Topics in Knowledge Management Science: Knowledge Management
   - CS 295.S38: Special Topics in Knowledge Management Science: Knowledge Management
   - CS 295.S51: Special Topics in Computer Science: Data Mining

*Students must take 6 courses from a chosen track.*

"Elective courses not included in the list and/or offered by other departments may be taken subject to the approval of the DISCS Graduate Program Director"

**III. Thesis Writing Requirement (6 units)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 300 Thesis Writing 1</td>
<td>3</td>
</tr>
<tr>
<td>CS 300 Thesis Writing 2</td>
<td>3</td>
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*Note: Thesis must be presented in a national or international IT conferenc*