# Software Technology

## Catalog Year: 2020, Required Hours: 720

### Required Core Courses (720 hours required)

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<tr>
<th>Course Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>MATH1100</td>
<td>Math for Software Development</td>
<td>60.00</td>
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The purpose of this course is to teach students the essential concepts of mathematics including algebra that Software Developers use. Using the skills developed through this course students will be able to face the logical and mathematical challenges that programming represents.

**Objectives:** Gain practical mathematical knowledge, Build the foundation skills necessary for programming.

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<tr>
<td>PROG1001</td>
<td>Foundations of Computer Science</td>
<td>120.00</td>
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This course provides the students with a solid understanding in many computer science topics that have industry applications. Students will learn concepts such as ethical issues in computing, networks, operating systems, databases, problem solving and programming. This course will provide a background in basic computing along with many other foundation skills.

**Objectives:** Build a foundational level of understanding in these areas:
- History and Social Implications of Computing
- Computing Security and Ethics
- Computer Architecture
- Networks
- The Internet
- Database Fundamentals
- Numbering Systems and Data Representations
- Data Structures
- Operating Systems
- File Structures
- The Human-Computer Interface
- Problem Solving and Debugging
- Software Engineering

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<td>PROG2830</td>
<td>Java Programming I</td>
<td>120.00</td>
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This course is an introduction to Java with object-oriented programming. It includes Java basics, working with objects, arrays, conditions, and loops, creating classes and applications, methods and applets, images, managing events and interactivity, creating user interfaces, advanced user interfaces, networking, advanced API, modifiers, packages, interfaces, inner classes and, exceptions. Advanced commands, Java streams and I/O, using native methods and libraries, will also be taught.

**Competencies:**
- Learn how to use Structured Programming Techniques
- Write Java Programs that can be used in business
- Use a variety of tool and techniques in order to solve programming problems

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<td>MDTC2111</td>
<td>HTML and CSS</td>
<td>120.00</td>
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This course will give students hands on experience using everything they need to develop highly effective Web sites. Students will learn comprehensive coverage of HTML5, Cascading Style Sheets (CSS), and Web design best practices. This course presents information on accessibility, ethics, e-commerce, Web site promotion strategies, and JavaScript.

**Competencies:**
- Students will get a better understanding of HTML5 and CSS in Web Site development
- Demonstrate the application of fundamental scripting techniques in a variety of formats and web development processes
- Apply specific scripting types in Web site development
- Learn the basic understanding of E-commerce and web site promotion

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<td>PROG1501</td>
<td>SQL: Relational Database</td>
<td>120.00</td>
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This course is designed to give users an understanding of the SQL language using Oracle’s SQL Developer tools. The course covers SQL commands for DML (data manipulation language), DDL (data definition language), and Query operations. The course topics are valid to all versions of Oracle through Oracle 12g. The SQL techniques can be applied to other database environments.

**Competencies:**
- Ability to normalize a database to third form
- Understand relational database theory and concepts
- Demonstrate skill in the basics of the SQL language
- Become proficient in formulating SQL queries
- Understand Oracle’s SQL Developer tools
- Ability to use DML (insert, update, and delete) and DDL (create, alter, and drop)
- Know and apply SQL programming techniques to retrieve desired data and write advanced queries
### Software Testing I

**Course Code:** PROG1050<br>**Credit Hours:** 60.00<br>

This course utilizes various testing frameworks and techniques. Topics include testing in the SDLC, test planning, test design, test analysis. Students learn about test object, objectives, field testing. Covered topics include equivalence techniques, boundary analysis and test conditions.<br>

**Objectives:**<br>- Learn how testing relates to the SDLC<br>- Develop test plans<br>- Develop a test effort estimation<br>- Learn the foundations of software testing.

### Software Technology Capstone Project

**Course Code:** PROG1060<br>**Credit Hours:** 60.00<br>

This course provides an opportunity to complete a significant programming project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, testing, presentation, and implementation. Upon completion, students should be able to complete a project from the definition phase through implementation.<br>

**Objectives:**<br>- Gain practical experience by working on projects<br>- Build up your portfolio<br>- Challenge yourself and expand your skills

### Software Technology Portfolio Development

**Course Code:** PROG1065<br>**Credit Hours:** 60.00<br>

Using the skills developed through the course of their education, students will create a professional portfolio of their work. The resulting portfolio will be presented to prospective employers, as an interactive, graphic representation of their skills and accomplishments.<br>

**Objectives:**<br>- Develop materials for a professional quality portfolio<br>- Design and develop packaging that enhances presentation of the portfolio<br>- Demonstrate skills learned by presenting finished portfolio in mock interview(s).