Lake Michigan Community College courses taken (STEM)
Joseph Halcombe

Computer Information Systems

118 WEB DEVELOPMENT & DESIGN FOUNDATIONS
This class introduces students to the wide range of concepts and technologies related to the web development and design process. Topics include discussion and demonstration of multimedia and web technologies, site functionality, web development languages (such as HTML, CSS and PHP), internet ethics, security, networking, marketing and management. Students will use commercial development tools.

119 PROGRAMMING LOGIC & DESIGN
This is an introductory course in computer programming logic. The student will learn concepts applicable to all programming languages. Topics include data types, arrays, logic control structures, algorithms, structured programming methods, and report generation, memory addressing schemes, functions and modules. Program logic will be developed using flowcharts and pseudocode.

140 NETWORK FOUNDATIONS
This course covers the architecture, structure, functions and components of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple local area networks (LAN), perform basic configurations for routers and switches, and implement Internet Protocol (IP). Aligned with industry certifications.

155 COMPARATIVE OPERATING SYSTEMS
This course is designed for students wishing to develop an understanding of current operation systems, their differences and similarities, user interfaces and application considerations. Students will develop a proficiency installing current operating systems. They will also use the command line (shell), access and change BIOS, system and administrative tools.
Prerequisites: CIS 106

156 COMPUTER SECURITY
The purpose of this course is to provide students with a comprehensive overview of computer and network security issues including the numerous types of attacks to which computers are vulnerable; the types of attacker profiles; education, training and awareness regarding computer/network use; and the hardware and software defense solutions available. It covers topics from configuring personal virus detection to the function/operation of firewalls, VPNs, access control lists, etc. Students will gain an appreciation and better understanding of the terms, devices and software employed in securing computers and networks in homes, small businesses and large businesses. Aligned with CompTIA Security+ certification.

164 C++ PROGRAMMING
This course introduces the fundamental concepts and implementations of a modern C programming language in a business environment. Major topics include general programming tools for business applications and fundamentals of business programming such as language

syntax, declaration and data types, variables and constants, arrays, statements and expressions, conditions, programming structures (i.e. sequence, selection, iteration) and modularity of business applications. Commercial development tools will be used.
Prerequisite: CIS 119

226 SWITCHING, ROUTING, AND WIRELESS ESSENTIALS
This course covers the architecture, components, and operations of routers and switches in small networks and introduces wireless local area networks (WLAN) and security concepts. Students learn how to configure and troubleshoot routers and switches for advanced functionality using security best practices and resolve common issues with protocols in both IPv4 and IPv6 networks. Aligned with industry certifications.
Prerequisites: E, M, R, CIS 140

240 SYSTEMS ANALYSIS & DESIGN
Understand the process of developing information systems that effectively use hardware, software, data, processes and people to support the company's business objectives.
Prerequisites: CIS 100, CIS 119 and CIS 140

264 ADVANCED C++ PROGRAMMING
This course is a continuation of CIS164 with more emphasis on top-down, modular, structured design and techniques involved in the production of large computer programs. Advanced language features such as web application, database, file access, object oriented programming, graphics and animation are covered. A team programming project will be assigned.
Prerequisite: CIS 164

268 C# PROGRAMMING
An advanced course for students who have a basic understanding of arrays, pointers, structures and object oriented programming. The goal of this course is to provide students with the knowledge and skills they need to develop C# applications for the Microsoft .NET Platform. The course focuses on C# program structure, language syntax and implementation details. Commercial development tools will be used.
Prerequisite: CIS 264

291 SOFTWARE ENGINEERING
Advanced course covering topics in software design and implementation, including development paradigms, project requirements and specifications, object-oriented development, graphical user interface (GUI) design, event-driven systems, CASE tools, and the maintenance and management of systems software. UML will be used to model the phases of the software engineering process and exercises will emphasize a hands-on approach to object-oriented software development.
Prerequisite: CIS 264 or CIS 266

Mathematics

123 QUANTITATIVE REASONING

Quantitative Reasoning is designed to provide students with relevant mathematics and critical thinking skills they will need for their future college courses, their careers and their civic lives. The design provides a thematic, contextual approach that covers the fundamental quantitative skill set in depth. Topics include ratios, rates, percentages, units, descriptive and inferential statistics, linear and exponential modeling, correlation, logic and probability. This project-based course uses Microsoft Excel and emphasizes conceptual understanding and applications. Reading of current newspaper articles and exercises involving personal finance are incorporated to place the mathematics in real-world context.
Prerequisites: R, M, MATH 095 with a C or better