COMPUTER SCIENCE (CS)

CS 100 COMPUTER LITERACY **3 Credit Hours**
Students will learn basic computer concepts relating to current operating systems, the Internet, setting up a home network, using multimedia and photo functions. Word processing, spreadsheet and presentation software will be covered. (3 lecture)

CS 101 INTRO TO PC APPLICATIONS **4 Credit Hours**
Students learn to use computer applications as tools for problem solving and data analysis using four different Microsoft Office applications, with primary focus on using Excel and Access to analyze and explore real world data. (4 lecture)
Prerequisite(s): MATH 100 or MATH 101 or MATH 102 or MATH 107 or ACT Math with a score of 19 or SAT Mathematics with a score of 510
Pre/Corequisite(s): MATH 119 or MATH 120 or MATH 121 or MATH 125 or MATH 126 or MATH 211

CS 102 SPREADSHEET APPLICATIONS **2 Credit Hours**
Course teaches the use, design, and application of Excel spreadsheets from a technician viewpoint. Topics include: creating and using spreadsheets, predefined functions, graphs and charts, filters, and application design and development. (2 lecture)
Prerequisite(s): MATH 111 or MATH 124

CS 121 INTRODUCTION TO PROGRAMMING **4 Credit Hours**
Fundamentals of computer programming techniques to solve problems studied. Topics include: programming language structure, syntax, style, types of data, variables, functions, control structures and algorithms. (3 lecture, 1 lab)
Prerequisite(s): MATH 112
Pre/Corequisite(s): MATH 125 or MATH 126 or MATH 128 or MATH 129 or MATH 150 or MATH 155 or MATH 156 or MATH 211

CS 122 OBJECT ORIENTED PROGRAMMING **4 Credit Hours**
Introduction to new programming tools required to solve more advanced problems. Students will study object-oriented design and programming, including using interfaces, inheritance and the fundamentals of data sets and data structures. (3 lecture, 1 lab)
Prerequisite(s): CS 121 and (MATH 125 or MATH 126 or MATH 128 or MATH 129 or MATH 150 or MATH 155 or MATH 156 or MATH 211 or MATH 112)

CS 129 INTRO TO WEB PAGE DESIGN **3 Credit Hours**
Students will learn how to apply best practice design principles to create web pages and web sites with modern tools and languages, including HTML, CSS and JavaScript. (3 lecture)

CS 201 DATABASE THEORY AND DESIGN **3 Credit Hours**
Introduction to database structure, organization and retrieval. Query languages, normalization, file structure, database security and distributed database systems will be discussed. (3 lecture)
Prerequisite(s): CS 121 or CIT 410

CS 204 DIGITAL GAME DESIGN **3 Credit Hours**
An introductory overview of the electronic game development process and underlines the historical context, content creation strategies, and future trends in the industry. The course will also explain how games are produced, tested, and released. (3 lecture)

CS 220 WEB APPLICATION DEVELOPMENT **3 Credit Hours**
This course will introduce students to the use of web programming and databases to create dynamic web-based applications for businesses. (3 lecture)
Pre/Corequisite(s): CS 129 and (CS 301 or CS 201)

CS 221 DATA STRUCTURES **4 Credit Hours**
The conceptualization and usage of software data structures and abstract data types to solve complex problems. Topics include using standard libraries to develop complex software and analyze algorithms for efficiency and performance. (3 lecture, 1 lab)
Prerequisite(s): CS 122

CS 260 COMPUTER SCIENCE CAPSTONE **3 Credit Hours**
Final capstone project for the CS degree. Designed to give the student supervised experience in real world software development, encompassing all subject areas covered in the CS program. Students will also sit for an industry certification exam. (3 lecture)
Pre/Corequisite(s): CS 221 and CS 220 and (CS 301 or CS 201)

CS 261 CAPSTONE PROJECT LAB **1 Credit Hour**
Students will sit for at least one of the available, approved computer science industry certifications. (1 lab)
Pre/Corequisite(s): CS 260

CS 293 COOPERATIVE WORK EXPERIENCE **1-8 Credit Hours**
(1-8 lecture)

CS 295 SEMINAR **1-6 Credit Hours**
Designed for small groups interested in a particular topic. Participants will present material for discussion. Course may be repeated up to 6 credit hours. (Departmental approval required) (1-6 lecture)

CS 297 SPECIAL TOPICS **1-6 Credit Hours**
(1-6 lecture)

CS 299 INDEPENDENT STUDY **1-4 Credit Hours**
(1-4 lecture)

CS 302 SYSTEM ANALYSIS AND DESIGN **3 Credit Hours**
Analysis and design of computer-based information systems; organization of information systems; techniques for conducting system studies; developing specifications and design; documentation. (3 lecture)
Prerequisite(s): CIT 130

CS 309 OPERATING SYSTEMS **3 Credit Hours**
Students learn the history and internal workings of operating systems software, the fundamentals of the UNIX operating system and learn the C programming language. (3 lecture)
Prerequisite(s): CS 221 and (MATH 125 or MATH 126)

CS 320 OBJECT ORIENTED DESIGN **3 Credit Hours**
Object-oriented design is the process of planning a system of interacting objects for the purpose of solving a software problem. (3 lecture)
Prerequisite(s): CS 221

CS 321 MOBILE APPLICATION DEVELOPMENT **3 Credit Hours**
Course teaches how to design, author and publish applications for mobile devices such as smart phones and tablets. (3 lecture)
Prerequisite(s): CS 122

CS 329 ADVANCED WEB PAGE DESIGN **3 Credit Hours**
Students learn the advanced features of JavaScript, HTML5, and CSS technologies to create dynamic and interactive web pages. (3 lecture)
Prerequisite(s): CS 129 and CS 220

CS 331 EMBEDDED SYSTEMS PROGRAMMING **3 Credit Hours**
Introduction to embedded system controls. Included are an introduction to various hardware and software platforms. Students will create, deploy and troubleshoot an embedded control program. (2 lecture, 1 lab)
Prerequisite(s): CS 122
Pre/Corequisite(s): MATH 318

CS 393 COOPERATIVE WORK EXPERIENCE **1-12 Credit Hours**
(1-12 lecture)

CS 397 SPECIAL TOPICS **1-6 Credit Hours**
(1-6 lecture)

CS 399 INDEPENDENT STUDY **1-3 Credit Hours**
(1-3 lecture)

CS 401 COMPUTER NETWORKS **3 Credit Hours**
Understanding of the design of software to support computer networks, layered protocol architecture, and distributed operating systems. Other topics include switching, encryption, data compression and security. (Prerequisite: CS 221) (3 lecture)
Prerequisite(s): CS 221

CS 403 SOFTWARE ENGR & DATA STRUCTURE **3 Credit Hours**
Dealing with problems of programming in the large, software life cycle, object-oriented design, numerical algorithms, graph algorithms, pattern matching and encryption methods. (3 lecture)
Prerequisite(s): CS 221

CS 404 WEB SERVICES **3 Credit Hours**
Students learn the use of SOAP and REST technologies, using the Internet as a platform for building distributed information systems. (3 lecture)
Prerequisite(s): CS 220 and CS 221

CS 410 SOFTWARE MAINT & EVOLUTION **3 Credit Hours**
This course teaches tools, techniques, concepts and current practices for software maintenance and evolution. (3 lecture)
Prerequisite(s): CS 302

CS 420 ADVANCED WEB DEVELOPMENT **3 Credit Hours**
Students learn the use of the Model/View/Controller (MVC) programming paradigm in web application development. (3 lecture)
Prerequisite(s): CS 220 and CS 221

CS 460 SENIOR PROJECT **3 Credit Hours**
Students will present a systems analysis and design project as a final senior project in Computer Information Systems. (3 lecture)
Prerequisite(s): STEM 420