INFORMATION SYSTEMS
(IS)

IS 101. Keyboarding. 1 Credit Hour.
This course is designed for the beginning student to develop touch control of
the keyboard, to use proper techniques, to build skill to a minimum of 25 words
per minute for one minute. Emphasis is on learning the alphabet, numeric, and
symbol keys and on building basic skill. Satisfactory/Unsatisfactory grading.
Additional practice hours may be required.

IS 102. Keyboarding and Formatting. 3 Credit Hours.
Students learn to develop touch control of the keyboard, proper keyboarding
techniques, and to apply basic formatting skills to letters, memos, reports, and
tables.

IS 109. Proofreading and Editing. 1 Credit Hour.
Students learn to produce high-quality business communications through
proofreading for accuracy in mechanics, format, and content as well as edit
documents for correctness, conciseness, and clarity.
Prerequisites: IS 101 or IS 102 and Reading Proficiency.

IS 112. Software and Hardware Architecture. 3 Credit Hours.
Software and Hardware Architecture provides a survey of technical topics
related to computer systems with emphasis on the relationships between
hardware architecture and software. Binary and hexadecimal number
systems, data representation, data structures, processor architecture, and
operating systems functions and methods will be explored. Recommended
Preparation: Basic computer literacy is expected.
Prerequisites: MTH 140 or MTH 160 or MTH 185 or higher and Reading Proficiency.

IS 116. Computer Literacy. 3 Credit Hours.
This course explores the terminology and concepts of computers including file
management, Internet browsers, and web page development. Students gain
proficiency using productivity tools such as word processors, presentation
software, electronic spreadsheets and electronic mail to solve problems,
communicate, and manage information to make informed decisions. Students
will also develop a computer application.
Prerequisite: Reading Proficiency.

IS 118. Computer Applications-Databases. 1 Credit Hour.
This course focuses on the use of a relational database system on the computer
with business and personal applications. Additional lab time may be required.
Prerequisite: IS 123 or equivalent experience.

IS 119. Computer Applications-Word Processing. 1 Credit Hour.
This class is an introduction to word processing using a current software
program. Included in this course are the basic functions of creating, formatting,
editing, and printing documents. Additional lab hours may be required.
Prerequisite: IS 123 or equivalent experience.

IS 122. Windows. 3 Credit Hours.
Terminology and concepts of the Windows interface will be covered. File
management and organization, managing programs, and installing and
uninstalling applications are also covered.
Prerequisite: Reading Proficiency.

IS 123. Introduction to Windows. 1 Credit Hour.
Students learn the basic concepts of the Windows environment and how
to create and manage files within the organizational structure of that
environment. The desktop, accessories, and navigational tools will also be
covered.

IS 124. Windows-Advanced. 1 Credit Hour.
Students learn about the Windows operating system in-depth. Installing,
running, and uninstalling Windows applications and optimizing performance of
the Windows operating system will be covered.
Prerequisites: IS 132 and Reading Proficiency.

IS 125. Excel for Windows. 2 Credit Hours.
This course introduces the use of Excel for applications in business, involving
topics which include formatting worksheets, calculating data with formulas
and functions, analyzing financial data, designing tables and charts, and
working with macros.
Prerequisites: IS 122 or IS 123.

IS 129. HTML. 1 Credit Hour.
This course covers the essentials of creating web pages using Hypertext Markup
Language (HTML) and Cascading Style Sheets (CSS). Students will create and
edit basic pages which include text, links, and images. HTML and CSS will be
used to control page appearance and layout. Recommended preparation IS 123
or equivalent experience.
Prerequisite: Reading Proficiency.

IS 130. Hardware and Software Support. 3 Credit Hours.
This course covers the theory and hands-on skills necessary to pass the
CompTIA A+ exam. Topics covered include hardware fundamentals, networking
and security. Students will learn basic operating system functionality and
troubleshooting methodology, the practice of proper safety procedures, and
how to effectively interact with customers and co-workers. Basic computer
literacy is expected.
Prerequisite: Reading Proficiency.

IS 132. Windows-Intermediate. 1 Credit Hour.
This course is a continuation of Introduction to Windows. Students will become
more familiar with the Windows interface and will learn how to manage and
manipulate programs, files, folders and objects.
Prerequisite: IS 123.

IS 136. Internet Fundamentals. 1 Credit Hour.
This course provides practical information regarding Internet practices and
safety. Searching, validating, and securely passing information to and from the
Internet are emphasized. Identifying and mitigating common threats such as
spyware, viruses, Trojan Horses, and identity theft are covered.
Prerequisites: IS 122 or IS 123 and Reading Proficiency.

IS 139. Web Publishing. 3 Credit Hours.
Web Publishing introduces current industry standards for web development
and design techniques that include the use of Hypertext Markup Language
(HTML), Cascading Style Sheets (CSS), and an introduction to JavaScript.
Topics such as web development process, accessibility standards, platform
standards, HTML editors and converters, Web 2.0 Technologies, performance
issues, tables, forms, dynamic content, and web site management issues will be
presented.
Prerequisite: Reading Proficiency.

IS 141. Graphics for the Web. 3 Credit Hours.
This course focuses on generating graphics that can be utilized within the
context of the Internet. Topics will include use of graphics at the appropriate
times, performance issues, button creation, animated graphics, and
multimedia tools.
Prerequisites: IS 139 and Reading Proficiency.
IS 142. Web Development I. 3 Credit Hours.
Web Development I is an in-depth study of the development and implementation of engaging websites using current industry production tools. Accessibility, security, and website management issues will be addressed. Topics such as file formats, platform standards, user-centered navigation, dynamic content such as streaming video/audio, and search engine concepts will be presented.
Prerequisites: IS 187 or IS 153, IS 139, IS 265 and Reading Proficiency.

IS 151. Computer Applications in Business. 4 Credit Hours.
This course covers software programs frequently used in the business environment. Word processing, spreadsheets, database management, and presentation software will be introduced.
Prerequisites: IS 122 or IS 123 or IT 102 or equivalent experience.

IS 152. Computer Applications in Business-Intermediate. 3 Credit Hours.
This course is a continuation of Computer Applications in Business (IS 151). Software packages from these categories will be studied: spreadsheets, database management, word processing, and presentation software.
Prerequisites: IS 151 and Reading Proficiency.

IS 153. C# Programming I. 4 Credit Hours.
This course emphasizes software development problem-solving methodologies utilizing current software design and development tools and techniques. Topics include data structures, program design, pseudocode, language control structures, procedures and functions, error handling, and Object-Oriented design using classes. Assignments will be developed in the C# language using the current development environment.
Prerequisite: Reading Proficiency.

IS 154. Web-Based Productivity Applications. 2 Credit Hours.
Learn to use web-based applications utilized to enter, retrieve, and update data. Web-based collaboration tools, online file management, and cloud computing will also be covered.
Prerequisites: IS 151 and Reading Proficiency.

IS 156. Computer Applications-Intermediate Databases. 1 Credit Hour.
This course is a continuation of IS 118. Student will learn about action queries, inner/outer joins, mail merge, importing and exporting specifications, queries that “prompt” for criteria, and additional formatting techniques for reports. Macros will also be introduced.
Prerequisites: IS 118 or IS 151 and Reading Proficiency.

This class is a continuation of IS 119. The students will merge documents, create and sort tables, insert images, utilize drawing objects, use special formatting features, and prepare charts and web pages. In addition, students will create basic macros and integrate/import other applications into documents.
Prerequisite: IS 119 or IS 151.

IS 161. Computer Applications: Advanced Word Processing. 1 Credit Hour.
This class is a continuation of IS 157. Additional emphasis will be placed on advanced word processing features. Students will create advanced macros, style sheets, outlines, master documents, fill-in forms, table of contents, and shared documents.
Prerequisites: IS 157 and Reading Proficiency.

IS 165. Computer Applications-Microsoft Project. 1 Credit Hour.
This course introduces students to the Microsoft Project software application. Microsoft Project allows students, professionals, volunteers, or an individual managing or working on a project to organize all the details of a project into one central repository.
Prerequisite: Reading Proficiency.

IS 167. C++ Programming I. 4 Credit Hours.
C++ Programming I introduces software development problem-solving methodologies utilizing current software design and development tools and techniques. Topics include data structures, program design, pseudocode, language control structures, system and user defined functions, error handling, pointers, arrays, and Object-Oriented design using classes. Assignments are developed in C++ using a current integrated development environment (IDE). Basic computer literacy expected.
Prerequisite: Reading Proficiency.

IS 187. Java Programming I. 4 Credit Hours.
In this course students learn software development problem-solving methodologies utilizing current software design and development tools and techniques and also receive an introduction to the Java programming language. Topics include data structures, program design, pseudocode, language control structures, procedures and functions, error handling, and Object-Oriented design using classes. Assignments are developed in Java using a current integrated development environment (IDE). Basic computer literacy expected.
Prerequisite: Reading Proficiency.

IS 200. Electronic Records Management. 2 Credit Hours.
Students learn database management and records management procedures from creation through processing, maintenance, retention, retrieval, protection, and disposition. Electronic and manual filing rules are covered and alphabetic, numeric, subject, and geographic filing methods are emphasized.
Prerequisites: IS 118 or IS 151 and Reading Proficiency.

IS 205. Medical Terminology. 4 Credit Hours.
Medical Terminology provides a broad survey of the language of medicine and health technologies. Students learn to accurately spell and define common medical terms related to major disease processes, diagnostic procedures, laboratory tests, abbreviations, drugs, and treatment modalities. Emphasis is placed on formation, definition, and pronunciation.
Prerequisite: Reading Proficiency.

IS 209. Computer Applications - Advanced. 3 Credit Hours.
This course covers integration techniques used to share information between computer applications. Templates, workgroup features, scripting, and other time-saving techniques are explored to enable students to work with greater efficiency. Case studies and independent projects provide practical experience in the development and implementation of business models.
Prerequisites: IS 152 and Reading Proficiency.

IS 210. Office Technology and Procedures. 3 Credit Hours.
Students learn effective business communication techniques, processing of information via technology, and coordination of office information. Human relations skills and computer-based tools are emphasized.
Prerequisites: IS 165, IS 209 and Reading Proficiency.

IS 214. Spreadsheet Macros and Advanced Topics. 1 Credit Hour.
This course will cover more complex functions of spreadsheets including financial tools and analysis, connecting to external data sets, database functions and queries, and collaboration.
Prerequisites: IS 125 and Reading Proficiency.

IS 225. Database Management. 4 Credit Hours.
This course will cover the concepts, skills, methodology, and database technology necessary to design and implement a relational database management system. Topics include relational databases, data structures, relational data modeling and design using current industry techniques and tools. This course emphasizes Structures Query Language (SQL) commands to create a relational database.
Prerequisite: Reading Proficiency.
IS 229. Unix/Linux I. 3 Credit Hours.
This course introduces the Unix/Linux operating system with special focus on the organization and maintenance of the file system. Students are also introduced to basic installation and configuration of the operating system and will build and troubleshoot a stand-alone Unix/Linux machine. Course objectives align with the Linux Professional Institute Level 1 certification and emphasize command line process. Basic computer literacy is expected. Prerequisite: Reading Proficiency.

IS 237. Fundamentals of Information Assurance/Security. 3 Credit Hours.
This course examines fundamentals of network security involved in creating and managing secure computer network environments. Both hardware and software topics are considered, including authentication methods, remote access, network security architectures and devices, cryptography, forensics and disaster recovery plans. This course serves as a preparation basis for CompTIA Security+ exam. Prerequisites: IT 102 or IS 229 and Reading Proficiency.

IS 240. SQL and Database Development. 3 Credit Hours.
This course covers the concepts of Structured Query Language (SQL) and database development. Students learn how to create tables, views and indexes. Managing and formatting data, developing queries and sub-queries and advanced reporting are presented. Students learn how to develop, manage and implement database control and connectivity techniques. Prerequisites: IS 225 and Reading Proficiency.

IS 241. Systems Analysis and Design. 3 Credit Hours.
This course covers the concepts, skills, methodologies, techniques and perspectives essential to analyze and design information systems. Visual and emerging development tools are used to focus on object-oriented and visual development of information systems. Additional lab time may be required. Prerequisites: IS 153 or IS 187 and Reading Proficiency.

IS 253. C# Programming II. 4 Credit Hours.
This course focuses on broadening and deepening the student’s understanding of Object Oriented Programming (OOP) as implemented in the C# language. Core elements include creating and deploying Windows programs, form application basics, building user interfaces using basic techniques, .NET fundamentals, basic coding within the .NET framework, design and development of classes, overloading and overriding methods and constructors, inheritance, encapsulation and interfaces. Course objectives align with the Microsoft Certified Technical Specialist (MCTS). .NET Framework, Windows Applications certification. Prerequisites: IS 153 or IS 187 with minimum grades of “C” and Reading Proficiency.

IS 256. C++ Programming. 3 Credit Hours.
This course introduces the C++ programming language. Topics include language syntax, logic and flow control, data types and structures, files, pointers, system and user defined functions, arrays, recursion, and the use of libraries. Object-oriented principles are emphasized, including the design and coding of classes and class objects. Prerequisites: IS 153 or IS 187 with a minimum grade of “C”, or MTH 160A or MTH 160B or MTH 160C, and MTH 170 or MTH 185 with a minimum grade of “C” or satisfactory score on placement test, and Reading Proficiency.

IS 257. Advanced Database Design. 3 Credit Hours.
This course is a continuation of the database design course covering implementation concepts such as n-tier architectures, middleware, SQL functionality, distributed databases, data warehousing and cloud computing. The course focusses on application of both theory and practice. Additional lab time may be required. Prerequisites: IS 225 and Reading Proficiency.

IS 264. Unix/Linux II. 3 Credit Hours.
This course prepares students to perform basic Unix/Linux systems administration and network installation tasks. Students will be introduced to the design, configuration, and installation of system services along with management and automation of those services through shell scripting. System security will also be covered. Course objectives align with the Linux Professional Institute Level 1 certification. Prerequisites: IS 229 and Reading Proficiency.

IS 265. Web Scripting Technologies. 3 Credit Hours.
This course presents current and emerging scripting technologies used for development of state-of-the-art websites and other applications. The primary focus is on client-side technologies. Students will use a variety of technologies in this project-oriented class. Prerequisites: IS 139 and Reading Proficiency.

IS 267. C++ Programming II. 4 Credit Hours.
C++ Programming II focuses on broadening and deepening the student’s understanding of Object Oriented Programming (OOP) as implemented in the C++ language. Core elements include design and development of classes and use of inheritance, including multiple inheritance, polymorphism, and the use of the Standard Template Library. Development of Graphical User Interfaces in an integrated development environment (IDE) will be explored. Prerequisites: IS 167 with a minimum grade of “C” and Reading Proficiency.

IS 268. SQL Server Programming. 3 Credit Hours.
This course is an in-depth study of Microsoft SQL Server programming. Students learn the advanced features of SQL Server to interact with the database and other applications. Advanced techniques such as database cursors, triggers and stored procedures, SQL Server Data Tools and SQL Server Reporting Services are presented. In addition, students gain the essential knowledge and skills in collecting, analyzing, interpreting and presenting information obtained from multiple data sources. Prerequisites: IS 240 with a minimum grade of “C” and Reading Proficiency.

IS 269. SQL Server Applications Programming. 3 Credit Hours.
This course covers the development of Graphical User Interface (GUI) database applications in Microsoft Visual Studio and SQL Server environment. Students learn to use Microsoft Visual Studio and professional .NET developer tools to develop web-based data-driven applications. Practical solutions for typical business situations are presented, demonstrated and developed in a lab environment. Prerequisites: IS 240 with a minimum grade of “C” and Reading Proficiency.

IS 273. Oracle Design and Implementation. 3 Credit Hours.
This course covers the design, configuration, and development of an Oracle database. Students will be exposed to the design, configuration, and development of state-of-the-art websites and other applications. The primary focus is on client-side technologies. Students will use a variety of technologies in this project-oriented class. Prerequisites: IS 240 and Reading Proficiency.

IS 275. Advanced C++ Programming. 3 Credit Hours.
This course is a continuation of IS 256, covering database connectivity, object-oriented data structures, sorting, searching, exception handling, and the Standard Template Library. The creation and use of classes will be emphasized including the principles of inheritance and polymorphism. GUI technologies will be explored, including the development of web interfaces. Prerequisites: IS 256 and Reading Proficiency.
IS 276. Oracle Programming. 3 Credit Hours.
This course is an in-depth study of Oracle structured query language (SQL) and procedural language (PL/SQL). Students will learn the advanced features of SQL and PL/SQL to interact with the database and other applications. Advanced techniques such as control structures, cursors, database triggers, functions, stored procedures and packaging will be presented.
Prerequisites: IS 225 with minimum grade of "C" and Reading Proficiency.

IS 280. Python. 3 Credit Hours.
Python focuses on software development problem-solving methodologies utilizing current software design and development tools implemented in the Python programming language. Topics include data structures, program design, pseudocode, language control structures, procedures and functions, error handling, and object-oriented design. Assignments are developed in Python using a current Integrated Development Environment (IDE).
Prerequisites: IS 139 and Reading Proficiency.

IS 283. C# Programming III. 4 Credit Hours.
Students in this course focus on completing the acquisition of the knowledge and skills for developing applications using Windows Forms, Windows Presentation Foundation (WPF) and the .NET Framework 4 in preparation for Microsoft's Microsoft Certified Technology Specialist (MCTS). .NET Framework 4, Windows Applications certification. Coursework will include developing Windows applications using the C# programming language to access data in Windows forms applications, create Windows services, utilize advanced user interface techniques, implement n-tier applications and implement web applications.
Prerequisites: IS 253 with a minimum grade of "C" and Reading Proficiency.

IS 287. Java Programming II. 4 Credit Hours.
This course focuses on broadening and deepening the student's understanding of Object Oriented Programming (OOP) as implemented in the Java language. Core elements include design and development of classes, overloading and overriding methods and constructors, inheritance, encapsulation, and interfaces. Course objectives align with Oracle's Certified Professional, Java SE Programmer certification.
Prerequisites: IS 153 or IS 187 with minimum grades of "C" and Reading Proficiency.

IS 288. Java Programming III. 4 Credit Hours.
Students in this course complete their understanding of core java concepts required for Oracle's Java SE Programmer certification. Java web development utilizing the Model-View-Controller (MVC) pattern with Java Server Pages (JSP) and Servlets is also examined. Mobile access to web applications is introduced, and secure coding principles are emphasized.
Prerequisites: IS 287 with a minimum grade of "C" and Reading Proficiency.

IS 290. C# Frameworks: .NET Web App Framework. 3 Credit Hours.
C# Frameworks: .NET Web App Framework teaches the .NET Web application framework using C#. Students expand their C# development skills and gain the knowledge and skills required to design and develop Web applications by using the latest version of the Microsoft .NET framework, including .NET Core and Microsoft Visual Studio. This course aligns with the "Developing ASP.NET MVC Web Applications" certification exam.
Prerequisites: IS 283 with a minimum grade of "C" and Reading Proficiency.

IS 291. Workplace Learning: Information Systems. 3 Credit Hours.
This course consists of a workplace assignment with an employer or agency (minimum of 150 hours during the semester), which allows the student to apply skills learned in the classroom. Students will have the opportunity to learn new skills and to explore career possibilities while supervised by the employer and a faculty member. This course is appropriate for students nearing completion of their IS degree program.
Prerequisites: Enrollment in an IS program, department approval, and Reading Proficiency.

IS 294. Java Frameworks: Struts and Hibernate. 3 Credit Hours.
In this course student expand their Java development skills by learning popular Java frameworks and tools for rapid application development of enterprise-level systems. The main focus is on Struts, the Java Persistence Interface (JPA) using Hibernate, and Enterprise Java Beans (EJB). This course aligns with the Oracle Certified Expert - Java EE Enterprise Javabeans certification.
Prerequisites: IS 288 with a minimum grade of "C" and Reading Proficiency.

IS 295. Java Mobile Applications Development. 3 Credit Hours.
This course focuses on java technologies and techniques for developing mobile applications for cell phones and other "smart" devices. The course aligns with Oracle's Java ME Mobile Application Developer certification.
Prerequisites: IS 287 with a minimum grade of "C" and Reading Proficiency.

IS 296. Java Frameworks: Spring. 3 Credit Hours.
Java Frameworks: Spring focuses on the popular Java Spring Framework as a tool for rapid development of enterprise level systems. The integration of Spring with other frameworks such as Struts and Hibernate will also be examined. This course aligns with the SpringSource certification for the Core Spring Developer exam.
Prerequisites: IS 288 with a minimum grade of "C" and Reading Proficiency.