

# INFORMATION SYSTEMS (IS)

---

## Course Descriptions

### **IS 101. Keyboarding. 1 Credit Hour.**

Keyboarding is a skill-development course designed to introduce touch control of the keyboard using proper techniques. Emphasis is on learning the alphabetic, numeric, and symbol keys. Students learn basic techniques to build speed and accuracy. Satisfactory/Unsatisfactory grading. (Credit is only allowed for either IS 101 or AOS 105.)

### **IS 102. Keyboarding and Formatting. 3 Credit Hours.**

Keyboarding and Formatting is a skill-development course in which students utilize proper techniques to develop touch control of the keyboard and apply basic formatting skills to letters, memos, reports, and tables. (Credit is only allowed for either IS 102 or AOS 101.)

### **IS 109. Proofreading and Editing. 1 Credit Hour.**

Proofreading and Editing covers the production of high-quality business communications through proofreading for accuracy in mechanics, format, and content as well as editing documents for correctness. (Credit is only allowed for either IS 109 or AOS 120.)

Prerequisites: 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 systems software. Binary and hexadecimal number systems, data representation, data structures, processor architecture, and operating systems functions and methods will be explored.

Prerequisites: Concurrent or prior enrollment MTH 160 (or MTH 160S) or MTH 180 (or MTH 180S) with a minimum grade of "C", and Reading Proficiency  
Recommended Preparation: Basic computer literacy is expected

### **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.

Prerequisites: Reading Proficiency

### **IS 120. Introduction to Excel. 1 Credit Hour.**

Introduction to Excel teaches the fundamentals of creating and managing Excel worksheets and workbooks. Topics include creating cells and ranges, creating tables, applying formulas and functions, and creating basic charts and objects to represent data visually.

Prerequisites: Reading Proficiency

### **IS 122. Windows. 3 Credit Hours.**

Windows is a skill-development course covering the Microsoft Windows operating system. Topics include file and folder management and organization, hardware management, software management, network connection, system customization, system optimization, and system security.

Prerequisites: 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 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 with a minimum grade of "C"

### **IS 129. HTML. 1 Credit Hour.**

HTML covers the essentials of creating web pages using Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS). Students will create and edit web pages which include text, hyperlinks, images, and tables. HTML and CSS will be used to control page appearance and layout.

Prerequisites: Reading Proficiency

Recommended Preparation: IS 123 or equivalent experience

### **IS 130. Hardware Support - CompTIA A+ Core 1 (Hardware). 3 Credit Hours.**

Hardware Support - CompTIA A+ Core 1 (Hardware) covers the theory and hands-on skills necessary to pass the CompTIA A+ hardware (Core 1) 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.

Prerequisites: Reading Proficiency

Recommended Preparation: Basic computer literacy is expected

### **IS 136. Internet Fundamentals. 1 Credit Hour.**

Internet Fundamentals 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: 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.

Prerequisites: Reading Proficiency

### **IS 141. Graphics for the Web. 3 Credit Hours.**

Graphics for the Web 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 with a minimum grade of "C" and Reading Proficiency

### **IS 142. Web Development. 3 Credit Hours.**

Web Development 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 including file formats, platform standards, user-centered navigation, dynamic content such as streaming video/audio, and search engine concepts will be presented.

Prerequisites: IS 153 or IS 167 or IS 187 with a minimum grade of "C", IS 139 with a minimum grade of "C", concurrent or prior enrollment in IS 265 with a minimum grade of "C", 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 with a minimum grade of "C" or equivalent experience

**IS 152. Computer Applications in Business-Intermediate. 3 Credit Hours.**

This class 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 with a minimum grade of "C" 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. Prerequisites: Reading Proficiency

**IS 154. Web-Based Productivity Applications. 2 Credit Hours.**

Web-Based Productivity Applications is a skills-based course covering various Internet applications. Topics include creating, sharing, and editing online files and folders; leveraging social media; managing data and project logistics; and communicating and collaborating with text, audio, and video. Prerequisites: IS 151 with a minimum grade of "C" 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. (Credit is only allowed for either IS 165 or IS 503.) Prerequisites: Reading Proficiency

**IS 166. C# and Java Programming I. 4 Credit Hours.**

C# and Java Programming I teaches students software development problem-solving methodologies utilizing current software design and development tools and techniques. Students will also receive an introduction to both the C# and Java programming languages. Topics include data structures, program design, pseudocode, language control structures, procedures and functions, error handling, and Object Oriented design using classes. (Credit is only allowed for either IS 166 or IS 153 and IS 187.) Prerequisites: Reading Proficiency  
Recommended Preparation: Basic computer literacy is required

**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. (Credit is only allowed for either IS 167 or IS 256.) Prerequisites: Reading Proficiency

**IS 168. GitHub for Developers. 1 Credit Hour.**

GitHub for Developers covers the Git source control tool and GitHub code hosting services. Students learn to use Git and GitHub efficiently to create and manage their personal and professional projects. Prerequisites: Reading Proficiency  
Recommended Preparation: Internet basics

**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. Prerequisites: 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. (Credit is only allowed for either IS 200 or AOS 200.) Prerequisites: IS 118 or IS 151 with a minimum grade of "C" and 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 with a minimum grade of "C" and Reading Proficiency

**IS 210. Office Technology and Procedures. 3 Credit Hours.**

Office Technology and Procedures covers concepts and skills of business professionals. Topics include becoming a professional, working ethically, working in teams, being customer focused, improving communication, communicating with technology, planning events, managing physical and electronic records, coordinating travel, understanding financial documents, seeking employment, and leading within an office environment. (Credit is only allowed for either IS 210 or AOS 206.) Prerequisites: IS 152 with a minimum grade of "C" 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 Structured Query Language (SQL) commands to create a relational database. Prerequisites: 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. Prerequisites: Reading Proficiency

**IS 237. Fundamentals of Information Assurance/Security - CompTIA Security+. 3 Credit Hours.**

Fundamentals of Information Assurance/Security - CompTIA Security+ 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 the CompTIA Security+ exam.

Prerequisites: IT 102 or IS 229 with a minimum grade of "C" 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 with a minimum grade of "C" and Reading Proficiency

**IS 241. Systems Analysis and Design. 3 Credit Hours.**

Systems Analysis and Design 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.

Prerequisites: IS 153 or IS 167 or IS 187 with a minimum grade of "C", and IS 139 or IS 253 or IS 267 or IS 287 with a minimum grade of "C", and Reading Proficiency

**IS 253. 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 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 167 or IS 187 or IS 166 with minimum grades of "C" and Reading Proficiency

**IS 257. Big Data Analytics. 3 Credit Hours.**

Big Data Analytics is a continuation of the database design course covering implementation concepts such as n-tier architectures, middleware, SQL and JSON functionality, distributed databases, data warehousing and the Big Data platforms Hadoop and MongoDB. The course focuses on application of both theory and practice.

Prerequisites: IS 225 with a minimum grade of "C" 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. (Credit is only allowed for either IS 264 or IS 501.)

Prerequisites: IS 229 with a minimum grade of "C" 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 with a minimum grade of "C" 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. (Credit is only allowed for either IS 267 or IS 275.)

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 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: 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 285. Excel for Data Analytics. 3 Credit Hours.**

Excel for Data Analytics prepares students to use Excel to apply statistical techniques to identify hidden patterns in data. Topics include Power Query for data import, pivot tables, what-if analysis, charting, scripting and conditional formatting, data cleansing, reporting, and graphical data visualization with Tableau.

Prerequisites: IS 120 with a minimum grade of "C", concurrent or prior enrollment in MTH 160 (or MTH 160S) or MTH 180 (or MTH 180S) with a minimum grade of "C", and Reading Proficiency

**IS 287. Java Programming II. 4 Credit Hours.**

Java Programming II 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 167 or IS 187 or IS 256 or IS 166 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