INFORMATION TECHNOLOGY (IT)

IT-1025 Information Technology Concepts for Programmers
3 Credits
Designed for students pursuing careers in programming, networking and general Information Technology fields. Introduces computer, networking, and programming concepts.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): None.

IT-1050 Programming Logic
3 Credits
Learn to solve business problems by designing, coding, and testing programming solutions using a current high-level programming language. Learn and apply standard language constructs, control flow, and beginning object-oriented programming concepts.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers, or concurrent enrollment.

IT-1080 Introduction to Data Analytics
4 Credits
Broad coverage of topics key to data scientists to convert information to knowledge. Focus is on current data analytics methods to address business problems.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers or concurrent enrollment.

IT-1090 Computer Applications
3 Credits
Overview of the computer techniques and skills used in a professional environment. Instruction and hands-on training in file management, word processing, spreadsheet, presentation software, electronic collaboration, and professional Internet usage. Practical applications in researching, creating, editing, saving, presenting, and printing computer generated materials in a professional manner.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): Recommend BT-1000 Keyboarding and Document Formatting for students who type less than 25 wpm or have no keyboarding experience.

IT-109H Honors Computer Applications
3 Credits
Overview of the computer techniques and skills used in a professional environment, with an emphasis on problem solving and addressing business needs. Instruction and hands-on training in file management, word processing, spreadsheet, presentation software, database management, electronic collaboration, and professional Internet usage. Practical applications in researching, creating, editing, saving, presenting, and printing computer generated materials in a profession manner.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): MATH-0955 Beginning Algebra, or appropriate Math placement score; and eligibility for ENG-101H Honors College Composition I.

IT-1150 Introduction to Web Programming
3 Credits
Build Web pages using current technologies including but not limited to HTML, cascading style sheets and JavaScript using an HTML editor. Focus is on developing a foundation in web programming.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers, or concurrent enrollment.

IT-1815 Introduction to Blockchain
3 Credits
Course provides a foundation in Blockchain terminology, concepts and design and development fundamentals.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology for Programmers, IT-1050 Programming Logic, and IT-2351 Enterprise Database Systems.

IT-1816 Special Topics: Introduction to Quality Assurance
3 Credits
Introductory course in Quality Assurance that provides the fundamentals of software testing with exposure to Agile methodologies.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): MATH-0955 Beginning Algebra, or appropriate Math placement score; and eligibility for ENG-0990 Language Fundamentals II or appropriate score on English Placement Test.

IT-1820 Independent Study/Research in Information Technology
1-3 Credits
Directed individual study. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.
Lecture: 1-3 hours
Prerequisite(s): Departmental approval, and instructor approval, and ENG-0990 Language Fundamentals II or appropriate score on English Placement Test.

IT-2030 ASP.NET Web Programming
4 Credits
Capstone course for Programming and Development majors. Advanced server-side programming course. Create server-side, database-driven websites using the ASP.NET framework in combination with markup, style sheets and client-side scripting.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1150 Introduction to Web Programming, and IT-2351 Enterprise Database Systems; and IT-2650 Java Programming or IT-2620 Visual Basic .NET Programming.

IT-2080 Data Visualization
4 Credits
Create static and dynamic data visualizations using the latest development tools and techniques. Advanced topics include dashboards and stories.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers, and IT-1080 Introduction to Data Analytics or concurrent enrollment, and IT-2351 Enterprise Database Systems.
IT-2090 Data Analytics Programming
4 Credits
This course covers the fundamental concepts of R and the use of R for effective data analysis. Students will develop skills to develop solutions to complex problems across a variety of disciplines using data and real-world case studies.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1050 Programming Logic, and IT-1080 Introduction to Data Analytics or concurrent enrollment.

IT-2100 iOS Application Programming
4 Credits
Focuses on skills required to successfully create dynamic and efficient iOS applications. Covers the fundamentals of objects, classes and behaviors as well as object communication and user interface design considerations. Mac computer required with ability to download/install software.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-2650 Java Programming.

IT-2110 Android Mobile Application Development
3 Credits
Introduction to mobile development using the Android Software Development Kit (SDK). Focuses on the skills required to design, develop and publish applications for the Android platform. Covers the fundamentals of Android application development including designing an application, implementing specific framework components such as a splash screen and main menu, how to handle user interaction and make an application available in the Android market.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-2650 Java Programming.

IT-2320 Interactive Internet Programming
4 Credits
Introduction to interactive object-oriented programming in an Internet environment from a conceptual approach. Emphasis is on understanding the basic Internet technologies (mostly from the client side), how and when to use them and how to integrate them into a system.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1050 Programming Logic, and IT-1150 Introduction to Web Programming.

IT-2351 Enterprise Database Systems
4 Credits
Apply knowledge of: relational algebra, data migration, data warehousing, data mining, distributed databases and security to design, develop and normalize a Structured Query Language (SQL) database to 3rd normal form using appropriate diagrams and database objects. Retrieve, insert, update, delete, troubleshoot and report data from complex SQL databases.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers; IT-1050 Programming Logic; and MATH-0955 Beginning Algebra, or MATH-0990 Math Literacy for College Students, appropriate score on Math placement test.

IT-2400 Unity Game Programming
3 Credits
An introduction to scripting with Unity focusing on the programming skills needed to translate game design principles into a fully-functional game.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): VCIM-1400 Game Design II: Game Engines, or departmental approval.

IT-2600 E-Business Programming Technologies
3 Credits
Use of web programming technologies to create Internet client/server applications. Design, create, code and debug applications using Web objects. Topics include, but are not limited to, SQL, XML, C# .Net, Visual Basic Net, and a server-side technology such as PHP.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-1150 Introduction to Web Programming, and IT-2351 Enterprise Database Systems; or IT-2650 Java Programming; or IT-2670 C/C++ Programming Language; or IT-2680 Visual C#.NET.

IT-2650 Java Programming
4 Credits
Introduction to object-oriented methodologies and programming using the Java programming language. Design, code, and debug Java applications. Other topics include GUI components, event handling, and exception handling.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1050 Programming Logic.
OAN Approved: CTAN Approved: Career Technical Assurance Guide CTPROG002

IT-2660 Data Structures & Algorithms
4 Credits
Programming and problem-solving skills are further developed by using language features to implement various data structures such as stacks, queues, linked lists, trees and graphs. Additional topics include recursion, sorting, searching, and hashing algorithms.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-2650 Java Programming.

IT-2670 C/C++ Programming Language
4 Credits
Introduction to programming using the C and C++ programming languages, emphasizing program development and design, debugging techniques, and common basics of the C/C++ languages. Topics include Object-Oriented concepts (including classes, objects, attributes, methods and object communication), Structured Programming concepts (including control statements, conditions, loops) and Data Structures (including collections), data types, functions, argument passing, arrays, strings, structures, data files, and classes.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1050 Programming Logic.
IT-2680 Visual C# .NET
4 Credits
An introduction to object-oriented programming using the Visual C# .NET programming language. Design, code and debug Visual C# .NET applications and objects. Topics include, but not limited to, using methods, creating and using classes, GUI components, the Visual Studio IDE, event handling, using controls and exception handling.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers.

IT-2700 Systems Analysis and Design
3 Credits
Overview of systems development life cycle. Utilize structured tools and object-oriented techniques to analyze and document process flow, data flows, data structures, file designs, input & output designs and program specifications in the systems development life cycle. Examine information gathering and reporting activities. Analyze strategies and techniques for producing logical methodologies which deal with complexity in development of information systems.
Lecture: 3 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers.

IT-2710 Advanced Topics in Network Security
3 Credits
Capstone course. Provides in-depth understanding of network security principles and the tools and configurations needed to secure a network.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): ITNT-2370 Network Security Fundamentals.

IT-2720 Ethical Hacking and Systems Defense
3 Credits
Combines an ethical hacking methodology with the application of security tools to better help students secure systems. Includes an introduction to common countermeasures that effectively reduce and/or mitigate attacks.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): ITNT-2370 Network Security Fundamentals, and ITNT-2320 Network Administration I, and ITNT-2380 Linux Administration.

IT-2730 Intrusion Detection/Prevention Systems Fundamentals
3 Credits
Covers the design, implementation, and administration of Intrusion Detection/Prevention Systems. Includes practical, hands-on experience working with these systems and analysis various attack signatures and the network traffic these systems collect.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): EET-1312 Cisco II Basic Routing and Switching, and ITNT-2370 Network Security Fundamentals.

IT-2740 Fundamentals of Client Operating Systems and Hardware for Cybersecurity
4 Credits
Provides an introduction to and basic technical understanding of the function and operation of operating systems and computing hardware with consideration given to relevant security best practices.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1025 Information Technology Concepts for Programmers.

IT-2750 Scripting Fundamentals for Cybersecurity
3 Credits
Introduction to concepts important for popular cybersecurity scripting languages, including basic data types, control structures, regular expressions, input/output, and textual analysis. One or more common scripting languages relevant to the field of cybersecurity will be utilized in the course.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-1050 Programming Logic.

IT-2785 Special Topics: Blockchain Applications
3 Credits
Continuation of IT-1815 Special Topics: Introduction to Blockchain where students will continue to discover the building blocks of Blockchain and then extend their learning to examine and create Blockchain applications.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-1815 Special Topics: Introduction to Blockchain.

IT-2816 Special Topics: QA-2 - Software Testing
3 Credits
This is a continuation of IT1816 Introduction to Quality Assurance. In this course, students will learn SDLC process, testing types, techniques and test management cycle and will also get exposure to Agile Testing.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): None.

IT-2820 Advanced Independent Study in Information Technology
1-3 Credits
Directed individual advanced study. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.
Lecture: 1-3 hours
Prerequisite(s): Departmental approval, and instructor approval, and placement test.

IT-2817 Special Topics: Python Programming
4 Credits
An introduction to concepts important for popular cybersecurity scripting languages, including basic data types, control structures, regular expressions, input/output, and textual analysis. One or more common scripting languages relevant to the field of cybersecurity will be utilized in the course.
Lecture: 2 hours. Laboratory: 2 hours
Prerequisite(s): IT-1050 Programming Logic.

IT-2818 Special Topics: Server-side Web Programming
4 Credits
This is an advanced web programming course where we use Node.js framework to build web applications. Students will learn full stack web development including asynchronous processing, routing and accessing data in Node.js framework using Javascript, Express and Mongodb.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-2320 Interactive Internet Programming.

IT-2819 Special Topics: Python Programming
4 Credits
Python is a widely used general-purpose, high-level programming language. Its design philosophy emphasizes code readability, and its syntax allows programmers to express concepts in fewer lines of code than would be possible in languages such as C# or Java. The language provides constructs intended to enable clear programs on both a small and large scale.
Lecture: 3 hours. Laboratory: 2 hours
Prerequisite(s): IT-1050 Programming Logic or departmental approval/ equivalent industry experience.

IT-2820 Advanced Independent Study in Information Technology
1-3 Credits
Directed individual advanced study. Study/research title and specific content arranged between instructor and student. May be repeated for a maximum of six credits of different topics.
Lecture: 1-3 hours
Prerequisite(s): Departmental approval, and instructor approval, and ENG-0990 Language Fundamentals II or appropriate score on English Placement Test.
IT-2830 Cooperative Field Experience
1-3 Credits
Open to students eligible for the Cooperative Education Program. Employment in an approved training facility under College supervision. Requirement for one credit is 180 hours of approved work. Students may earn up to three credits in one semester. May be repeated for an accrued maximum of nine credits.
Other Required Hours: 180 clock hours of approved work per credit hour.
Prerequisite(s): See campus CO-OP Advisor for the Cooperative Education Program application.