

COMPUTER INFORMATION SYSTEMS

CIS-1A

Introduction to Computer Information Systems (C-ID:ITIS 120)

3.00 units
UC, CSU

Prerequisite: None.

Description: Examination of information systems and their role in business. Focus on information systems, database management systems, networking, e-commerce, ethics and security, computer systems hardware and software components. Application of these concepts and methods through hands-on projects developing computer-based solutions to business problems. Utilizing a systems approach students will use databases, spreadsheets, word processors, presentation graphics, and the Internet to solve business problems and communicate solutions. 54 hours lecture and 18 hours laboratory. (TBA option) (Letter grade only.)

CIS-1B

Advanced Concepts in Computer Information Systems

3.00 units
CSU

Prerequisite: CIS-1A.

Description: Advanced computer applications. Advanced concepts and skills of word processing, spreadsheets, presentation graphics, the Internet and databases with an emphasis on multitasking, integrating applications, linking, and embedding are covered. 54 hours lecture and 18 hours laboratory. (TBA option) (Letter grade only)

CIS-2

Fundamentals of Systems Analysis

3.00 units
CSU

Prerequisite: None.

Description: A systematic methodology for analyzing a business problem or opportunity, determining what role, if any, computer-based technologies can play in addressing the business need, articulating business requirements for the technology solution, specifying alternative approaches to acquiring the technology capabilities needed to address the business requirements, and specifying the requirements for the information systems solution in particular, in-house development, development from third-party providers, or purchased commercial-off-the-shelf packages. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-2) (Letter Grade, or Pass/No Pass option.)

CIS-3

Computer Applications for Business

3.00 units
CSU

Prerequisite: None.

Description: This course introduces a suite of computer applications used in business and office professions. Individuals who are already established in these professions may also benefit from skills emphasized which include: use of basic operating system functions, file management, word processing, spreadsheets, database management, and presentation graphics. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-3) (Letter Grade, or Pass/No Pass option)

CIS-5

Programming Concepts and Methodology I: C++ (C-ID: COMP 122)

4.00 units
UC, CSU

Prerequisite: None.

Advisory: CIS-1A.

Description: Introduction to the discipline of computer science incorporating problem definitions, algorithm development, and structured programming logic for business, scientific and mathematical applications. The C++ language will be used for programming problems. 54 hours lecture and 54 hours laboratory. (Same as CSC-5) (Letter grade only)

CIS-7

Discrete Structures (C-ID:COMP 152)

3.00 units
UC, CSU

Prerequisite: CIS/CSC-5.

Description: This course is an introduction to the discrete structures used in Computer Science with an emphasis on their applications. Topics covered include: Functions, Relations and Set; Basic Logic; Proof Techniques; Basics of Counting; Graphs and Trees; and Discrete Probability. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-7) (Letter grade only)

CIS-11**Computer Architecture and Organization: Assembly**
(C-ID:COMP 142)**3.00 units**
UC, CSU*Prerequisite: None.**Advisory: CIS/CSC-5.*

Description: An introduction to microprocessor architecture and assembly language programming. The relationship between hardware and software will be examined in order to understand the interaction between a program and the total system. Mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied as well as the internal representation of simple data types and structures. Numerical computation is performed, noting the various data representation errors and potential procedural errors. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-11) (Letter grade only)

CIS-12**Php Dynamic Web Site Programming****3.00 units**
CSU*Prerequisite: None.**Advisory: CIS/CSC-5 and CIS-72A and CIS/CSC-14A.*

Description: Dynamic web site programming using PHP. Fundamentals of server-side web programming. Introduction to database-driven web sites, using PHP to access a database such as MySQL. Web applications such as user registration, content management, and e-commerce. This course is intended for students already familiar with the fundamentals of programming and HTML. 54 hours lecture and 18 hours laboratory. (TBA Lab) (Same as CSC-12) (Letter Grade, or Pass/No Pass option.)

CIS-14A**Web Programming: Javascript****3.00 units**
CSU*Prerequisite: None.**Advisory: Previous programming experience and knowledge of HTML, CIS-5 or CSC-5 and CIS-72A.*

Description: Fundamentals of JavaScript programming for the world wide web for students already familiar with the fundamentals of programming and HTML. Language features will include control structures, functions, arrays, JavaScript objects, browser objects and events. Web applications will include image rollovers, user interactivity, manipulating browser windows, form validation and processing, cookies, and interactive page content. 54 hours lecture and 18 hours laboratory. (TBA Option) (Same as CSC-14A) (Letter Grade, or Pass/No Pass option)

CIS-14B**Web Programming: Active Server Pages****3.00 units**
CSU*Prerequisite: None**Advisory: CIS/CSC-5 and CIS-72A*

Description: Fundamentals of server-side Web programming using Active Server Pages (ASP) for students already familiar with the fundamentals of programming and HTML. Language features will include control structures, functions, arrays, collections, objects, and events. Focus on server-side programming to generate dynamic web content and database access. 54 hours lecture. (Letter Grade, or Pass/No Pass option.)

CIS-17A**Programming Concepts and Methodology II: C++**
(C-ID:COMP 132)**3.00 units**
UC, CSU*Prerequisite: CIS/CSC-5.*

Description: The application of software engineering techniques to the design and development of large programs; data abstraction, structures, and associated algorithms. A comprehensive study of the syntax and semantics of the C++ language and the methodology of Object-Oriented program development. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-17A) (Letter grade only)

CIS-17B**C++ Programming: Advanced Objects****3.00 units**
UC, CSU*Prerequisite: None.**Advisory: CIS/CSC-17A.*

Description: This is an advanced C++ programming course for students familiar with object-oriented programming that implements basic graphical user interfaces. An emphasis will be placed on advanced concepts associated with complex business and gaming applications that utilize exception handling, multithreading, multimedia, and database connectivity. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-17B) (Letter Grade, or Pass/No Pass option)

CIS-17C**C++ Programming: Data Structures****3.00 units**

UC, CSU

*Prerequisite: None.**Advisory: CIS/CSC-17A.*

Description: This course offers a thorough presentation of the essential principles and practices of data structures using the C++ programming language. The course emphasizes abstract data types, software engineering principles, lists, stacks, queues, trees, graphs, and the comparative analysis of algorithms. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-17C) (Letter Grade, or Pass/No Pass option.)

CIS-18A**Java Programming: Objects****3.00 units**

UC, CSU

*Prerequisite: None.**Advisory: CIS/CSC-5.*

Description: An introduction to Java programming for students already experienced in the fundamentals of programming. An emphasis will be placed upon object-oriented programming. Other topics include graphical interface design and typical swing GUI components. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-18A) (Letter Grade, or Pass/No Pass option.)

CIS-18B**Java Programming: Advanced Objects****3.00 units**

UC, CSU

*Prerequisite: None.**Advisory: CIS/CSC-18A.*

Description: This is an advanced Java programming course for students familiar with object-oriented programming and utilization of basic graphical interface techniques. An emphasis will be placed on advanced concepts associated with Business, E-Commerce and Gaming applications that utilize exception handling, multithreading, multimedia, and database connectivity. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-18B) (Letter Grade, or Pass/No Pass option.)

CIS-18C**Java Programming: Data Structures****3.00 units**

UC, CSU

*Prerequisite: None.**Advisory: CIS/CSC-18A.*

Description: This course offers a thorough presentation of the essential principles and practices of data structures using the Java programming language. The course emphasizes abstract data types, software engineering principles, lists, stacks, queues, trees, graphs, and the comparative analysis of algorithms. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-18C) (Letter Grade, or Pass/No Pass option.)

CIS-20**Systems Analysis and Design****3.00 units**

CSU

*Prerequisite: CIS-2 or CSC-2.**Advisory: CIS-62.*

Description: Structured design techniques for the development and implementation of computerized business applications. Course includes project planning, analysis of current system, design of a new system, implementation, consideration of data base design and development; file organization, and modular programming techniques. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-20) (Letter Grade, or Pass/No Pass option.)

CIS-21**Introduction to Operating Systems****3.00 units**

CSU

Prerequisite: CIS-1A.

Description: An introduction to operating system concepts, structure, functions, performance, and management. A current operating system, such as Windows, Linux, or UNIX is used as a case study. File multi-processing, system security, device management, network operating systems, and utilities are introduced. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-21) (Letter Grade, or Pass/No Pass option.)

CIS-21A**Linux Operating System Administration****3.00 units**
CSU*Prerequisite: None.**Advisory: CIS-1A or CIS-27.*

Description: This course covers the fundamentals of the Linux operating system, system architecture, installation, command line functions, performance, and file systems. All major administrative responsibilities associated with this operating system are performed. These tasks shall include but not be limited to system installation, configuration, security, and backups for both client and server which might be found in a small business environment. This course aligns with the Linux Professional, LPI.org LPIC-1 Certification exam. 54 hours lecture. (Same as CSC-21A) (Letter Grade, or Pass/No Pass option)

CIS-21B**Linux Operating System Administration II****3.00 units**
CSU*Prerequisite: None.**Advisory: CIS-21A and CIS-21*

Description: Intermediate fundamentals of the Linux operating system, system architecture, installation, command line and file system. The goal of this course is to build on the Linux I course and provide student learners the knowledge and skills to prepare for the exam objectives aligned to the Linux Professional Institute, LPI.org, LPIC-1 (or the CompTIA Linux powered by LPI) second certification exam. Individuals who complete this course should understand shells, scripting, data management, interfaces and desktops, administrative tasks, essential system services, network fundamentals and system security. 54 hours lecture and 18 hours laboratory. (Letter grade or Pass/No Pass option)

CIS-21C**Red Hat Linux System Administration I****3.00 units***Prerequisite: None.**Advisory: CIS-21 or CIS-21A.*

Description: An introduction to Red Hat Linux System Administration. Develops the skills needed for basic administration and configuration of Red Hat Enterprise Linux. This course introduces key command-line concepts and enterprise-level tools, laying the foundation for the rapid deployment of Red Hat Enterprise Linux. Also introduces the basic administration skills needed for resolving configuration issues and integrating Red Hat Enterprise Linux systems with other existing environments. It lays the foundation for secure user and group administration, and develops skills that allow administrators to use available storage solutions more efficiently and securely. This is the first of a two-course series that takes a computer professional knowing nothing about Red Hat Linux to becoming a fully capable Red Hat Linux system administrator. 54 hours lecture 18 hours laboratory. (Letter grade only)

CIS-25**Information and Communication Technology Essentials****4.00 units**
CSU*Prerequisite: None.**Advisory: CIS-1A.*

Description: Introduction to the computer hardware and software skills needed to help meet the growing demand for entry-level ICT professionals. The fundamentals of computer hardware and software as well as advanced concepts such as security, networking, and the responsibilities of an ICT professional will be introduced. Preparation for the CompTIA A+ certification exams. 54 hours lecture and 54 hours laboratory. (Same as CSC-25) (Letter Grade, or Pass/No Pass option.)

CIS-26A**Cisco Networking Academy 1A****4.00 units**
CSU*Prerequisite: None.**Advisory: CIS-1A, CIS-21, CSC-21 or CIS-25.*

Description: The first course in the CCNA curriculum introduces the architectures, models, protocols, and networking elements that connect users, devices, applications and data through the internet and across modern computer networks - including IP addressing and Ethernet fundamentals. By the end of the course, students can perform basic configurations for routers and switches to build simple local area networks (LANs) that integrate IP addressing schemes and foundational network security. Preparation for the CompTIA A+ and Cisco Certified Network Associate (CCNA) certification exam. This course is the 1st of 4 courses in the Cisco CCNA Routing and Switching Curriculum. 72 hours lecture. (Letter grade only)

CIS-26B**Cisco Networking Academy 1B****4.00 units**
CSU*Prerequisite: CIS-26A.*

Description: The Switching, Routing, and Wireless Essentials (SRWE) course is the second course in the CCNAv7 curriculum. This course focuses on switching technologies and router operations that support small-to-medium business networks. It includes wireless local area networks (WLANs) and security concepts. Students learn key switching and routing concepts. They can perform basic network configuration and troubleshooting, identify and mitigate LAN security threats, and configure and secure a basic WLAN. This course is designed to prepare students for Cisco Certified Network Associate (CCNA) certification examination. 72 hours lecture. (Letter Grade, or Pass/No Pass option.)

CIS-26C**Cisco Networking Academy 1C****4.00 units**
CSU*Prerequisite: CIS-26B.*

Description: Enterprise Networking, Security, and Automation (ENSA) describes the architecture, components, operations, and security to scale for large, complex networks, including wide area network (WAN) technologies. The course emphasizes network security concepts and introduces network virtualization and automation. Students learn how to configure, troubleshoot, and secure enterprise network devices and understand how application programming interfaces (API) and configuration management tools enable network automation. This course is 3rd Cisco-related curricula designed to prepare students for Cisco Certified Network Associate (CCNA) certification examination. 72 hours lecture. (Letter Grade, or Pass/No Pass option.)

CIS-26D**Cisco Networking Academy 1D****4.00 units**
CSU*Prerequisite: CIS-26C.*

Description: Cisco CCNA examination certification review that provides students a comprehensive and engaging preparation for certification. The course enables students to review network fundamentals, network access, IP connectivity, IP services, security fundamentals, automation, and programmability. Students perfect configuring and troubleshooting Cisco routers, and switch configurations to resolve complex WAN/LAN configurations. Students also develop the knowledge and skills needed to implement device monitoring, management, fine-tuning, virtualization, network automation concepts, and troubleshooting operations in a complex network. This course is the last of four Cisco-related curricula designed to prepare students for Cisco Certified Network Associate (CCNA) certification examination. 72 hours lecture. (Letter Grade, or Pass/No Pass option.)

CIS-26F**Cisco Networking Security****4.00 units**
CSU*Prerequisite: None**Advisory: CIS-26B, CIS-26C, and CIS-27*

Description: Provides students with in-depth network security education and a comprehensive understanding of network security concepts. Instruction includes, but is not limited to, installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data, skills needed to develop a security infrastructure, recognize vulnerabilities to networks, and mitigate potential security threats. Course is designed to prepare students for CCNA Security Certification (IINS 280-260 exam). 72 hours lecture. (Letter grade only.)

CIS-27**Information and Network Security****3.00 units**
CSU*Prerequisite: None.**Advisory: CIS-1A or CIS-25.*

Description: An introduction to the fundamental principles and topics of Information Technology Security and Risk Management at the organizational level. It addresses hardware, software, processes, communications, applications, and policies and procedures with respect to organizational Cybersecurity and Risk Management. Preparation for the CompTIA Security+ certification exams. 54 hours lecture. (Same as CSC-27) (Letter grade only)

CIS-27A**Computer Forensics Fundamentals****3.00 units**
CSU*Prerequisite: None**Advisory: CIS/CSC-27*

Description: An introduction to the methods used to properly conduct a computer forensics investigation beginning with a discussion of ethics, while mapping to the objectives of the International Association of Computer Investigative Specialists (IACIS) certification. Topics covered include an overview of computer forensics as a profession; the computer investigation process; understanding operating systems boot processes and disk structures; data acquisition and analysis; technical writing; and a review of familiar computer forensics tools. 54 hours lecture and 18 hours laboratory. (Same as CSC-27A) (Letter grade only)

CIS-27B**Introduction to Cybersecurity: Ethical****3.00 units**
CSU*Prerequisite: None**Advisory: CIS-1A, CIS-26A and CIS-27*

Description: Introduces the network security specialist to the various methodologies for attacking a network. Students will be introduced to the concepts, principles, and techniques, supplemented by hands-on exercises, for attacking and disabling a network within the context of properly securing a network. The course will emphasize network attack methodologies with the emphasis on student use of network attack techniques and tools and appropriate defenses and countermeasures. Students will receive course content information through a variety of methods: lecture and demonstration of hacking tools will be used in addition to a virtual environment. Students will experience a hands-on practical approach to penetration testing measures and ethical hacking. This course aligns with the CEH Certified Ethical Hacker certification exam. 54 hours lecture and 18 hours laboratory. (Letter grade or Pass/No Pass)

CIS-27C**Palo Alto Networks Firewall Essentials****3.00 units**
CSU*Prerequisite: None.**Advisory: CIS-26B and CIS-27.*

Description: Essential skills for working with Palo Alto Networks Firewall technology. Students will learn to configure and manage next-generation firewalls, manage protection for systems outside of the data center perimeter, configure firewall high availability and monitor network traffic using an interactive web interface and firewall reports. 54 hours lecture 18 hours laboratory. (Letter grade only)

CIS-28A**Ms Access Programming****3.00 units**
CSU*Prerequisite: None.**Advisory: CIS/CSC-5.*

Description: Use of the data management program, MS Access, in writing command file programs to automate database management applications with the use of Visual Basic Applications variables, expressions, and functions. This course shows students how event driven programs operate. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-28A) (Letter Grade, or Pass/No Pass option.)

CIS-30A**Introduction to Python Programming****3.00 units**
UC, CSU*Prerequisite: CIS-1A**Advisory: CIS-5*

Description: Combined features of Python are suitable for program development. Practical applications of Python may be found in the prominent fields of many different sciences field. Introduces the beginner or curious programmer to Python and basic programming concepts through a series of practical hands-on exercises following concept lecture and discussions. Provides an overview of the history and use of Python in scripting, web and software development and security. Emphasizes principles of software development, style, and testing. Focuses on programming and problem solving using Python programming language. 48 hours lecture and 27 hours lab. (Letter grade only)

CIS-34A**Introduction to Word****1.50 units**
CSU*Prerequisite: None.*

Description: Introductory word processing skills using Microsoft Word to create business documents. 27 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-34A) (Letter Grade, or Pass/No Pass option.)

CIS-40C
Installing, Configuring and Administering Microsoft Operating Systems **3.00 units**
CSU

Prerequisite: CIS-1A

Advisory: CIS-21 and CIS-25 and CIS-40A

Description: Install and configure Windows desktops, server, mobile computers and devices that run on Windows in a network environment. Addresses Windows application, tools, settings in network client and server systems. Course content follows the Microsoft Official Academic Course curriculum and is intended to prepare students to take the Microsoft Client component of the Microsoft Certified IT Professional (MCITP), Microsoft Certified Solution Associates (MCSA) and Microsoft Certified Technology Specialist (MCTS) certification exam. 48 hours lecture and 32 hours laboratory. (Letter Grade only)

CIS-40D
Systems and Network Administration **3.00 units**
CSU

Prerequisite: CIS-1A and CIS-25

Advisory: CIS-21 and CIS-40A

Description: Build, maintain, troubleshoot and support server hardware and software technologies. Focuses on network operating system administration concepts, structure, functions, performance, and resource management is covered. Current desktop and server operating systems, such as Windows, Linux or UNIX, Mac OS are explored in this course. File and storage management techniques, system security measures, device management, and utilities in network administration and technical support procedures are examined in this course. The students will be able to identify environmental issues; understand and comply with disaster recovery and physical / software security procedures; become familiar with industry terminology and concepts of incident handling; understand server roles / specializations and interaction within the overall computing environment. 48 hours lecture and 32 hours laboratory. (Letter Grade only)

CIS-41B
Healthcare Information Security and Privacy for Practitioner **3.00 units**
CSU

Prerequisite: CIS-27.

Advisory: CIS-1A, CIS-40A, CIS-40D, CIS-41

Description: Encompasses concepts and practices in implementing, managing and assessing system security and privacy controls to protect healthcare organizations. Include the technical strategies for health data management, global and national regulatory requirements and controls, privacy principles and governance, information risk management life cycle, and remediation of security gaps in healthcare organizations. Preparation for (ISC)2 HealthCare Information Security and Privacy Practitioner (HCISPP) certification. Aligned with ITIS 166 - Cybersecurity Operations. 48 hours lecture and 32 hours laboratory. (Letter grade or Pass/No Pass option)

CIS-41D
Advanced Security Concepts and Practices **3.00 units**

Prerequisite: CIS-27.

Advisory: CIS-1A and CIS-40A and CIS-40B and CIS-41A.

Description: Explores the concepts and steps to become a cyber-security professionals or consultants. Topics will include the functions and responsibilities of security consultant, approaches in security consulting and the pathway to become a successful cyber-security consultant. Tools used, type of training needed, and the ethics of security consulting are explained. There will be a lecture and hands-on portions of the course demonstrating tools commonly used by a security consulting. Topics include identifying enterprise system problem, deriving solutions, data classification for protective measures, decision making, risk management, incident handling, threat assessment, forensic investigation, allocating resources, and implementation of System Security Life Cycle processes to improve organization security landscape. Preparation for (ISC)2 SSCP certification or CompTIA Advanced Security Practitioner Certification (CASP+). Aligned with ITIS 166 - Cybersecurity Operations. (Letter grade or Pass/No Pass option)

CIS-49A
AWS Academy Cloud Foundations **4.00 units**
CSU

Prerequisite: None.

Advisory: CIS-1A. Description AWS Academy Cloud Foundations is intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. It provides a detailed overview of cloud concepts, AWS core services, security, architecture, pricing, and support. Preparation for the AWS Certified Cloud Practitioner exams. 54 hours lecture and 54 hours laboratory. (Letter Grade, or Pass/No Pass option)

Advisory: CIS-1A. Description AWS Academy Cloud Foundations is intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. It provides a detailed overview of cloud concepts, AWS core services, security, architecture, pricing, and support. Preparation for the AWS Certified Cloud Practitioner exams. 54 hours lecture and 54 hours laboratory. (Letter Grade, or Pass/No Pass option)

CIS-49B**AWS Academy Cloud Architecting****4.00 units**
CSU*Prerequisite: CIS-49A.*

Description: AWS Academy Cloud Architecture covers the fundamentals of building IT infrastructure on AWS. Designed to teach solutions architects how to optimize their use of the AWS Cloud by understanding AWS services and how they fit into cloud-based solutions. Although architectural solutions can differ depending on the industry, type of application, and size of the business, this course emphasizes best practices for the AWS Cloud that apply to all of them. It also recommends various design patterns to help you think through the process of architecting optimal IT solutions on AWS. Students will explore case studies that showcase how some AWS customers have designed their infrastructures and the strategies and services that they have implemented. Finally, this course provides opportunities for students to build a variety of infrastructures through a guided, hands-on approach. This course aligns with the AWS Solutions Architect Associate certification exam. 54 hours lecture and 54 hours laboratory. 54 hours lecture and 54 hours laboratory. (Letter Grade, or Pass/No Pass option.)

CIS-54A**Introduction to Animate****3.00 units**
CSU*Prerequisite: None.**Advisory: CIS-95A or CAT-95A or competency in the use of a computer and familiarity with the Internet.*

Description: Essential knowledge and skills required to use Animate. Includes instruction on the authoring tools, drawing tools, working with symbols, creating interactive buttons, and streaming sound. 54 hours lecture and 18 hours laboratory. (TBA option) (Letter grade only)

CIS-54B**Flash Scripting****3.00 units**
CSU*Prerequisite: None**Advisory: CAT/CIS-54A*

Description: Learn how to design, write, and debug scripts (programs) using the Flash scripting language. Incorporate scripts into Flash projects to control sophisticated animation, import video and sound files, integrate buttons, and create compelling interactivity using powerful features such as the Motion Editor, inverse kinematics, and support for 3D. 54 hours lecture and 18 hours laboratory. (TBA option) (Letter Grade, or Pass/No Pass option.)

CIS-56A**Designing Web Graphics****3.00 units**
CSU*Prerequisite: None**Advisory: Competency in the use of a computer and familiarity with the Internet recommended, such as CIS/CAT-95A.*

Description: Introduction to the concepts and skills required to create, modify, and prepare visual elements for placement within web pages. Focus on the understanding of file compression, color palettes, visual design, and layout principles. The course uses Adobe Photoshop. 54 hours lecture and 18 hours laboratory. (TBA option) (Letter grade only)

CIS-61**Introduction to Database Theory****3.00 units**
CSU*Prerequisite: None.*

Description: Database design and development using modern "Entity-Relationship" techniques, including data structures, performance, data validation, security and failure recovery techniques. 54 hours lecture, 18 hours laboratory. (TBA option) (Same as CSC-61) (Letter grade or Pass/No Pass option)

CIS-62**Microsoft Access****3.00 units***Prerequisite: None.*

Description: Provides a comprehensive introduction to the implementation of database management systems using Microsoft Access. Hands-on experience in modeling work problems and transforming them to a relational data model. Students will design data tables to efficiently store data. Students will be shown techniques for entering, changing, and deleting data using datasheets and forms. Students will learn to filter and modify data using queries and to output data using both forms and reports. Access macros will be applied to forms and reports. Students will be presented with database projects to reinforce lectures. 54 hours lecture and 18 hours laboratory. (TBA option)(Same as CSC-62.) (Letter grade only.)

CIS-63**Introduction to Structured Query Language (sql)****3.00 units**

CSU

Prerequisite: None.

Description: This course provides an introduction to the relational database management system industry standard - Structured Query Language (SQL). Students will analyze, design, and implement database schema using the SQL programming language. SQL will be utilized to develop a database structure (DDL). The student will use SQL to create both Select and action queries(DML). Joins, Unions, Differences and sub-query statements will be covered. Both the Access and Oracle SQL statements will be covered. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CSC-63) (Letter grade only)

CIS-65**Introduction to Microsoft Powerpoint****1.50 units**

CSU

Prerequisite: None.

Description: Introduction to Microsoft PowerPoint to plan, create, enhance, deliver, and share electronic presentations. Content includes inserting text, graphics, animations, videos, tables, charts, and integrating PowerPoint with other programs. 27 hours lecture and 18 hours of laboratory. (Same as CAT 65) (Letter Grade, or Pass/No Pass option)

CIS-72A**Introduction to Web Page Creation****1.50 units**

CSU

*Prerequisite: None**Advisory: Competency in the use of a computer, familiarity with the Internet or CIS-95A*

Description: An introduction to Web page creation using HTML (Hypertext Markup Language). Use HTML and CSS to design and create Web pages with formatted text, hyperlinks, lists, images, tables, and forms. 27 hours lecture and 18 hours laboratory. (Letter Grade, or Pass/No Pass option.) (TBA option)

CIS-72B**Intermediate Web Page Creation Using Cascading Style Sheets (CSS)****1.50 units***Prerequisite: None**Advisory: Knowledge of HTML and the Internet and CIS-72A and CIS-95A*

Description: Intermediate Web page creation using cascading style sheets (CSS) to format and lay out web page content. CSS works with HTML, so HTML knowledge is recommended. Inline styles, embedded styles, and external style sheets are covered. CSS is used to format text, links, set fonts, colors, margins, and position text and graphics on a page. CSS is also a component of Dynamic HTML. 27 hours lecture and 18 hours laboratory. (TBA option) (Letter Grade, or Pass/No Pass option.)

CIS-72C**Introduction to XML****1.50 units**

CSU

*Prerequisite: None**Advisory: Knowledge of HTML and CSS*

Description: Introduction to XML (Extensible Markup Languages) on the World Wide Web. Understand and create XML documents, and explore the various applications of the XML technology. 27 hours lecture.(Letter Grade, or Pass/No Pass option.)

CIS-76A**Introduction to Microsoft Expression Web****3.00 units**

CSU

*Prerequisite: None.**Advisory: CIS-95A and competency in the use of the Internet and in managing files and folders.*

Description: This course provides students with the knowledge and skills required to quickly design and implement webpages and to administer and update existing websites using Microsoft Expression Web. The course uses Microsoft Expression Web to streamline and automate website management on a web site. 54 hours lecture and 18 hours laboratory. (TBA option) (Letter grade only)

CIS-76B**Introduction to Dreamweaver****3.00 units**
CSU*Prerequisite: None**Advisory: CIS-95A*

Description: Provides students with the knowledge and skills required to quickly design and implement webpages and to administer and update existing websites using Dreamweaver. The course uses Dreamweaver to streamline and automate website management on a website. 54 hours lecture and 18 hours laboratory. (TBA option)(Letter Grade, or Pass/No Pass option)

CIS-78A**Introduction to Adobe Photoshop****3.00 units**
CSU*Prerequisite: None.*

Description: Introduction to Adobe Photoshop including mastery of digital image editing, selections, photo correction, image improvement, and vector drawing. Additional instruction in these skills: type manipulation, special effects, color correction, and web page illustrations. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-78A) (Letter grade only)

CIS-78B**Advanced Adobe Photoshop****3.00 units**
CSU*Prerequisite: CIS-78A or CAT-78A or ADM-71A*

Description: Advanced techniques and methods for using Adobe PhotoShop to produce custom graphic solutions. Focus on real-world projects, workflow foundations, adjusting and optimizing images, and tips and tricks for enhanced image creation. 54 hours lecture and 18 hours laboratory. (TBA option) (Letter Grade, or Pass/No Pass option.)

CIS-79**Introduction to Adobe Illustrator****3.00 units**
CSU*Prerequisite: None*

Description: Introduction to Adobe Illustrator, involving creating artwork for logos, illustrations, posters, perspective drawing and web content. Development of a working knowledge of creating graphic images and typography along with color use. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-79) (Letter grade or Pass/No Pass)

CIS-80**Word Processing: Microsoft Word for Windows****3.00 units**
CSU*Prerequisite: None.**Advisory: CAT-51.*

Description: Develops introductory through advanced skills to format documents using Microsoft Word. Students create fliers, letters, memos, reports and office documents. Topics include mail merge and table basics and introduces advanced features and text editing tools of Microsoft Word. Students create reference documents, online forms and newsletters. Topics may include the use of macros and collaboration and integration tools. 54 hours lecture and 18 hours laboratory. (TBA Option) (Same as CAT-80) (Letter grade only)

CIS-81**Introduction to Desktop Publishing Using Adobe Indesign****3.00 units**
CSU*Prerequisite: None.*

Description: Introduction to Adobe InDesign, the industry-standard publishing app. Design and publish high-quality documents across a full spectrum of digital and print media. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-81) (Letter grade or Pass/No Pass option)

CIS-84**Word Processing: Wordperfect for Windows****3.00 units**
CSU*Prerequisite: None.**Advisory: CAT-51.*

Description: Introductory, intermediate, and advanced document formatting using WordPerfect for Windows. Students create fliers, letters, memos, reports and office documents. Topics include mail merge, table basics, advanced features and text editing tools of WordPerfect for Windows. Students create reference documents, online forms and newsletters. Topics may include the use of macros and collaboration and integration tools. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-84) (Letter grade only)

- CIS-90**
Microsoft Outlook **3.00 units**
CSU
- Prerequisite: None.*
Description: An introduction to the features of Microsoft Outlook. Students learn how to manage messages, schedule appointments, organize and manage tasks and contact lists, and customize Outlook for the workplace. Emphasis is placed on the use of Outlook for communication, sharing information, and productivity within a company or small business. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-90) (Letter Grade, or Pass/No Pass option.)
- CIS-91**
Microsoft Project **3.00 units**
CSU
- Prerequisite: None.*
Description: This course utilizes Microsoft Project to build, track, and account for variances and changes in the baseline plan. Emphasis is placed on project management, tracking, and information analysis. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-91) (Letter grade only)
- CIS-93**
Computers for Beginners **3.00 units**
- Prerequisite: None.*
Description: A practical step-by-step introduction to computer literacy topics including computer hardware and software, application skills, the Internet and Internet searching, Web page creation, and computer ethics. 54 hours lecture and 18 hours laboratory. (TBA option) (Same as CAT-93) (Letter grade, or Pass/No Pass option)
- CIS-94**
Data Analysis Using Excel and Access **2.00 units**
- Prerequisite: None.*
Advisory: CAT-98B or CIS-98B, CIS-62.
Description: Analysis, problem-solving, and decision making using Excel and Access for business. Using computer-based case studies, students analyze and solve business problems using the Access database management system and the Excel spreadsheet tools. 36 hours lecture. (Letter grade or Pass/No Pass option)
- CIS-95A**
Introduction to the Internet - Living Online **1.50 units**
CSU
- Prerequisite: None.*
Description: Introduction to concepts and skills needed to effectively use the Internet and/or work in a networked environment and maximize communication, education, collaboration, and social interactions in a safe and ethical manner. The course content aligns with the Internet Core Competency Certification (IC3) Global Standard 5 (GS5) Living Online exam, a component exam of the IC3 Digital Literacy Certification. 27 hours lecture and 18 hours lab. (TBA option) (Same as CAT-95A) (Letter grade only)
- CIS-98A**
Introduction to Excel **1.50 units**
CSU
- Prerequisite: None.*
Description: Introductory spreadsheet development using Microsoft Excel for business and scientific related applications. The course covers introductory through intermediate spreadsheet development. 27 hours lecture and 18 hours laboratory. (TBA option) (Letter Grade, or Pass/No Pass option.)
- CIS-98B**
Advanced Excel **1.50 units**
CSU
- Prerequisite: CAT/CIS-98A.*
Description: Advanced concepts of Microsoft Excel including managing large spreadsheets, creating and working with databases, creating and using templates, and macro creation. Spreadsheet manipulation with advanced macro techniques, customizing Excel screen and toolbars and solving problems with goal seeker and solver. 27 hours lecture and 18 hours of laboratory. (TBA option) (Same as CAT-98B) (Letter Grade, or Pass/No Pass option)

CIS-200**Computer Information Services Work Experience****1.00 - 4.00 units**

CSU

*Prerequisite: None.**Advisory: Students should have paid or voluntary employment.*

Description: Work Experience is designed to coordinate the student's on-the-job training with workplace skills designed to assist the student in developing successful professional skills. Each student will establish measurable learning objectives appropriate for their job and discipline. Students may earn up to four (4) units each semester, for a maximum of 16 units of work experience total. 60 hours of volunteer work or 75 hours of paid work during the semester are required for each unit. No more than 20 hours per week, out of the 60 or 75 requirement, may be applied toward the work requirement. The course consists of an 18 hours of orientation/professional skills development and 60 hours of volunteer work experience per unit with a maximum of 240 for four units per semester OR 75 hours of paid work experience per unit, with a maximum of 300 for four units per semester. (Letter grade or Pass/No Pass option)

CIS-801**Remote Work Technology****0 units***Prerequisite: None.*

Description: Explores topics related to creating remote workspaces including evaluating equipment, software and hardware, as well as the ergonomics, efficiency, and safety issues related to working remotely. 9 hours lecture. (Pass/No Pass only)

CIS-802**Remote Work Communication Tools and Apps****0 units***Prerequisite: None.*

Description: Evaluation of technology communication tools and applications for communication and collaboration used for remote work. Topics include identification and basic use of common communication and application tools used for remote work as well as online safety considerations. 9 hours lecture. (Pass/No Pass only)

CIS-803**Remote Productivity and Time Management Tools****0 units***Prerequisite: None.*

Description: Evaluation and selection of technology tools for productivity and time management. Topics include identification and basic use of tools and apps used for productivity and time management. 9 hours lecture. (Pass/No Pass only)

CIS-825**Cyber Skills - Intro to Cybersecurity****0 units***Prerequisite: None.**Advisory: Basic computer, operating system and network skills.*

Description: The Cyber Skills - Introduction to Cybersecurity is designed for students who are considering IT as career with specialization in cybersecurity. This exploratory course provides the students an introduction to cybersecurity. The course will explore ways to be safe online. Students will learn the different types of malware and attacks and measures used by organizations to mitigate the attacks. Students will research their career opportunities. 9 hours lecture and 9 hours laboratory. (Pass/No Pass only)

CIS-826**Cyber Skills Intro to Virtualization****0 units***Prerequisite: None**Advisory: Basic computer, operating system and network skills.*

Description: The Cyber Skills - Introduction to Virtualization is designed for students who are considering IT as career with specialization in cybersecurity. Virtualization skills are necessary to the cybersecurity professional due to its ubiquitous use in the IT field. Cybersecurity professionals need to understand how virtualization works to analyze the threats within the virtual environment as well as use virtualization for isolating systems for malware analysis and testing. This exploratory course provides the students an introduction to virtualization. The curriculum will explore ways to be safe online, learn the different types of malware and attacks, measures used by organizations to mitigate the attacks, and research their career opportunities. 9 hours lecture and 9 hours laboratory. (Pass/No Pass only)

CIS-827**Cyber Skills-Intro to Protocol Analysis****0 units***Prerequisite: None.**Advisory: Basic computer, operating system and network skills.*

Description: The Cyber Skills - Introduction to Protocol Analysis is designed for students who are considering IT as career with specialization in cybersecurity. Within the cybersecurity career path, protocol analysis is used to perform ongoing attacks as well as post attack analysis of network logs and data. This exploratory course provides the students an introduction to protocol analysis. The course will explore ways that protocol analysis can be used to detect and investigate different types of malware and attacks within an organizations network for incident response. 9 hours lecture and 9 hours laboratory. (Pass/No Pass only)

CIS-830**Introduction to Python Programming: Part 1****0 units***Prerequisite: None.**Advisory: Know the fundamental computer concepts and terminology used for input, processing, output, and storage. Know the basic features of software such as operating systems, and basic applications programs.*

Description: Introduction to the Python programming language by covering the basics of programming in Python to develop business, gaming, scientific and mathematical applications. 18 hours lecture. (Letter grade or Pass/No Pass option.)

CIS-831**Introduction to Python Programming: Part 2****0 units***Prerequisite: None.**Advisory: CIS-830.*

Description: Introduction to decision and iteration statements used in the Python programming language to further advance the student in developing business, gaming, scientific and mathematical applications. 18 hours lecture. (Letter grade or Pass/No Pass option.)

CIS-832**Intro to Python Programming: Part 3****0 units***Prerequisite: None**Advisory: CIS-831 Course Credit Recommendation: Non-Credit Introduction to functions, arrays and file input/output statements used in the Python programming language to further advance the student in developing business, gaming, scientific and mathematical applications. 18 hours lecture. (Pass/No Pass option.)***CIS-834****Historical Perspective: Napier to Torval****0 units***Prerequisite: None*

Description: The need for accurate and subsequently ever faster computations in science and engineering provides the background for the age of computers. Beginning with the development of logarithms and proceeding to the development and deployment of super computer computations using the Linux operating system. 9 hours lecture. (Pass/No Pass only)

CIS-835**Foundational Approach: Word Problems to Work Flow****0 units***Prerequisite: None.*

Description: There are systematic techniques to solve basic procedural problems. Mapping the known inputs to the desired outcome is a method used by all software engineers. These procedures can be applied to simple as well as complex problems. 9 hours lecture. (Pass/No Pass only)

CIS-836**Computational Tools: Calculators to Spreadsheets****0 units***Prerequisite: None.*

Description: Estimate the solution to a problem and confirm simple results with a calculator. For more complex problems, utilize formulaic spreadsheet techniques and develop test conditions for further checks. 9 hours lecture. (Pass/No Pass only)

CIS-837**Boolean Formulation: Logic to Relationships****0 units***Prerequisite: None.*

Description: All programs utilize basic boolean statements for branching and looping constructs. As such, a thorough understanding of simple logic is fundamentally required. 9 hours lecture. (Pass/No Pass only)

CIS-838**Pseudocode and Flowcharts: Descriptive to Visual****0 units***Prerequisite: None.*

Description: This course presents a non-coding technique of solving a problem using word models and pictures. Also, allows the lay person to understand how a solution is reached and how code can be documented. 9 hours lecture. (Pass/No Pass only)

CIS-839**Tools of the Trade: Ide's to Backup****0 units***Prerequisite: None.*

Description: This course presents what tools programmers utilize in their coding every day solutions to problems. The environment they use to code and the need to make constant backups along with collaborating with other programmers. 9 hours lecture. (Pass/No Pass only)

CIS-846**Access Skills: Creating and Using Tables****0 units***Prerequisite: None.*

Description: Use of database software to create, edit, and use database tables. 3 hours lecture and 6 hours laboratory. (Pass/No Pass only) (Same as CAT-846)

CIS-898**Windows, File Management, Internet, and Canvas Basics****0 units***Prerequisite: None.*

Description: Use Windows to manage files, directories, folders, and settings. Use system tools, including task manager, file compression, and snipping tool. Internet skills for safe browsing, basic security, and cloud storage. Canvas navigation and tools for better classroom experience. 9 hours lecture and 9 hours laboratory. (Same as CAT-898)(Pass/No Pass only)