

# Computer Information Systems

(Dept Logo Goes Here)

**DRAFT 11-18-2015**

## Program Information

The Computer Information Systems department at H. Councill Trenholm State Community College is progressive and innovative in its approach toward the trends in computer technology. Students enrolled in the CIS curriculum will gain knowledge and skills in current computer technology; they will also gain experience in developing the critical thinking, logic, and problem-solving skills necessary in today's rapidly changing computerized environment. Trenholm State will meet student needs for Information Technology training while providing students with effective and personalized training methods in a variety of concentration areas. The CIS program also emphasizes leadership and teamwork development within the Student Learning Outcomes of the program.

## Occupational Choices

At Trenholm State, we teach skills needed by: programmers; computer system analysts; database designers; network designers; Microsoft Certified Desktop Technicians; A+, Security+ and Linux+ Technicians; Cisco CCNA certified networkers; and, Office Technology Specialists with MS Office skills. We also offer others education and training, as well as a full spectrum of soft-skills. Job prospects should be best for college graduates who are up to date with the latest skills and technologies, particularly if they have supplemented their formal education with some relevant work experience and industry recognized certifications. Employers will continue to seek computer specialists who possess a strong background in fundamental computer skills combined with good interpersonal and communication skills. Due to the demand for computer support specialists and systems administrators over the next decade, those who have strong computer skills but do not have a bachelor's degree should continue to qualify for some entry-level positions. However, certifications and practical experience are essential for persons without degrees (Source: *Bureau of Labor and Statistics Occupational Outlook Handbook, 2014-2015 Edition, Survey 2014*).

## Average Full-Time Wage

Employment opportunities are expected to grow and earnings can range from entry level positions to much higher incomes for certified and experienced individuals. The average full-time annual wage of a CIS trained IT employee is \$48,900 (Computer Support Specialist) to \$102,190 (Computer and Information Research Scientist), based on skill level, experience, and field of work. Other job titles include: Computer Network Architect (\$91,000); Computer Programmers (\$74,280); Computer Systems Analysts (\$79,680); Database Administrators (\$77,080); Information Security Analysts (\$86,170); Network and Computer System Administrators (\$72,560); Software Developers (\$93,350); and, Web Developers (\$62,500). Other titles and skills also are within these job categories, depending on skills, degree, certifications, experience, availability, relocation, and variable factors of employment (Source: *Bureau of Labor and Statistics Occupational Outlook Handbook, 2014-2015 Edition, Survey 2014*).

## Awards Available

Associate in Applied Science in Computer Information Systems Technology

Networking Concentration (Cisco CCENT/CCNA)

System Support Concentration (Microsoft)

Database Concentration (Oracle & Access)

Web Design Concentration (CIW)

Programming Concentration (Object-Based Languages)

Short Term Certificate(s) in Computer Information Systems

Emphasis: Networking (CCNA)

Emphasis: System Support (Desktop/Server Support)

Emphasis: Database/Web Presence Applications/Design

Emphasis: Programming via Object-Based Languages

\*You must earn a final grade of a 70 ("C") or above to receive credit for DPT courses. Any final grade of 69 or below will constitute failure (F) in the course, and you will have to repeat the course to attempt to earn the appropriate credit. (This does not include CIS130 or CIS146).

## Estimated Program Length & Cost\*

<b>Award</b>	<b>Length</b>	<b>Credit Hours</b>	<b>Tuition Fees</b>	<b>Books</b>	<b>Tools</b>	<b>Supplies</b>
Associate Degree	6 Terms	76	\$10,564	\$1,750	0	\$250
Short Term Certificate	2-3 Terms	27	\$3,753	\$450	0	\$75

\* Tax not included. Prices are subject to change without prior notice; cost of books may vary considerably among suppliers. The length of the program is based on full-time status of 12-15 credit hours per term. Enrollment in transitional level general education courses will alter the length of the program.

## Computer Information Systems Technology Requirements for Associate in Applied Science

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
<b>Required Technical Core (45 Hours)</b>				
CIS-117	Database Management Software Applications	3	0	3
CIS-149	Introduction to Computers	3	0	3
CIS-171	Fundamentals of Unix/Linux I	2	2	3
CIS-201	Introduction to Computer Programming	3	0	3
CIS-207	Introduction to Web Development	3	0	3
CIS-209	Advanced Web Development	3	0	3
CIS-212	Visual Basic Programming	3	0	3
CIS-268	Software Support	3	0	3
CIS-269	Hardware Support	3	0	3
CIS-270	Cisco CCNA I: Networking Fundamentals	2	2	3
CIS-271	Cisco CCNA II: Routers & Switches	2	2	3
CIS-280	Network Security	3	0	3
CIS-281	Systems Analysis & Design	3	0	3
CIS-285	Object Oriented Programming	3	0	3
CIS-291	Case Study in Computer Science *	3	0	3

(\* Capstone Course: Student MUST be within 2 semesters of graduation or EXPRESS Permission of Instructor)

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
<b>Required General Education (22 credit hours)</b>				
ART-100	Art Appreciation	3	0	3
CIS-146	Microcomputer Applications	3	0	3
ENG-101	English Composition I	3	0	3
ENG-102	English Composition II	3	0	3
	OR SPH-106 Fundamentals Oral Communication			
	OR ENG-130 Technical Report Writing			
MTH-100	Intermediate Algebra	3	0	3
MTH-110	Finite Math	3	0	3
ORI-101	Orientation to College	1	0	1
PSY-200	General Psychology	3	0	3

**ELECTIVES:** (Select any nine credit hours from the following electives to be considered as a concentration; otherwise, your degree will be an Associate in Applied Science, Computer Information Systems, no concentration listed). Also, please note that some course listed in the "Course Descriptions" may be offered as needed and may be used as an elective and substituted on a case-by-case basis.

**CONCENTRATION ELECTIVES:****NETWORKING CONCENTRATION: (Cisco Networking)**

CIS-272	Cisco CCNA III: Advanced Routers & Switches	2	2	3
CIS-273	Cisco CCNA IV: WAN Technologies	2	2	3
CIS-172	Fundamentals of UNIX/Linux II	2	2	3

**SYSTEM SUPPORT CONCENTRATION (Microsoft System Support):**

CIS-275	Workstation Administration	3	0	3
CIS-276	Server Administration	3	0	3
CIS-265	End User & Desktop Application Support I	3	0	3

**PROGRAMMING CONCENTRATION (Object-Based Languages):**

CIS-213	Advanced Visual Basic Programming	3	0	3
CIS-255	JAVA Programming	3	0	3
CIS-256	Advanced JAVA	3	0	3

**DATABASE CONCENTRATION (ORACLE & Access)**

CIS-222	Database Management System	3	0	3
CIS-287	SQL Server	3	0	3
CIS-299	Directed Studies in Computer Science (Oracle Administration)	3	0	3

**WEB DESIGN CONCENTRATION (Certified Internet Webmaster):**

CIS-208	Web Authoring Software (Adobe DreamWeaver)	3	0	3
CIS-250	E-Commerce	3	0	3
CIS-264	Business Applications	3	0	3

**GENERAL ELECTIVES NOT ASSOCIATED WITH ANY CONCENTRATION:**

CIS-182	Help Desk Applications	3	0	3
CIS-189	Co-Op for DPT I	0	6	3
CIS-284	DPT Internship	0	6	3
CIS-294	Special Topics	3	0	3
CIS-296	Special Topics	0	6	3
CIS-297	Co-Op for DPT II	0	6	3
CIS-298	Co-Op for DPT III	0	6	3
CIS-299	Directed Studies in CIS	3	0	3
SET-101	Basic Keyboarding	3	0	3

**Total Hours: 76 Credit Hours; Contact Hours Below:****Cross-Reference of Courses-to-Certifications:**

CIS171/172: Linux+  
 CIS207/208: Certified Internet Webmaster  
 CIS268/269: A+  
 CIS270/271: CCENT & Network+  
 CIS272/273: CCNA  
 CIS280: Security+

**Requirements for Short Term Certificate  
Computer Information Systems Technology  
Emphasis: Networking (CCNA)**

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
CIS-171	Fundamentals of UNIX/Linux I	2	2	3
CIS-172	Fundamentals of UNIX/Linux II	2	2	3
CIS-268	Software Support	3	0	3
CIS-269	Hardware Support	3	0	3
CIS-270	Cisco CCNA I: Networking Fundamentals	2	2	3
CIS-271	Cisco CCNA II: Routers & Switches	2	2	3
CIS-272	Cisco CCNA III: Advanced Routers & Switches	2	2	3
CIS-273	Cisco CCNA IV: WAN Technologies	2	2	3
CIS-291	Case Study in Computer Science	3	0	3

**Total Hours: 27 Credit Hours**

*Suggested Sequence: 1) Semester 1: 171, 268, 170, 271; Semester 2: 172, 269, 272, 273; Semester 3: 291.*

**Requirements for Short Term Certificate  
Computer Information Systems Technology  
Emphasis: System Support (Desktop/Server Support)**

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
CIS-171	Fundamentals of UNIX/Linux I	2	2	3
CIS-182	Help Desk Applications	3	0	3
CIS-249	Microcomputer Operating Systems	3	0	3
CIS-275	Workstation Administration	3	0	3
CIS-276	Server Administration	3	0	3
CIS-280	Network Security	3	0	3
CIS-265	End User & Desktop Applications Support I	3	0	3
CIS-268	Software Support	3	0	3
CIS-269	Hardware Support	3	0	3

**Total Hours: 27 Credit Hours**

*Suggested Sequence: 1) Semester 1: 171, 268, 249, 275; Semester 2: 276, 280, 265, 269; Semester 3: 182.*

**Requirements for Short Term Certificate  
Computer Information Systems Technology  
Emphasis: Database/Web Presence Applications/Design**

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
CIS-207	Introduction to Web Development	3	0	3
CIS-208	Web Authoring Software	3	0	3
CIS-209	Advanced Web Development	3	0	3
CIS-255	JAVA Programming	3	0	3
CIS-222	Database Management Systems	3	0	3
CIS-250	E-Commerce	3	0	3
CIS-172	Fundamentals of UNIX/Linux II	2	2	3
CIS-287	SQL Server	3	0	3
CIS-299	Directed Studies in Computer Science (Oracle Administration)	3	0	3

**Total Hours: 27 Credit Hours**

*Suggested Sequence: 1) Semester 1: 172, 207, 222, 255; Semester 2: 209, 250, 287, 299; Semester 3: 208.*

**Requirements for Short Term Certificate  
Computer Information Systems Technology  
Emphasis: Programming via Object-Based Languages**

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
CIS-201	Introduction to Computer Programming	3	0	3
CIS-207	Introduction to Web Development	3	0	3
CIS-209	Advanced Web Development	3	0	3
CIS-212	Visual Basic Programming	3	0	3
CIS-213	Advanced Visual Basic Programming	3	0	3
CIS-255	JAVA Programming	3	0	3
CIS-256	Advanced JAVA	3	0	3
CIS-281	Systems Analysis & Design	3	0	3
CIS-285	Object Oriented Programming	3	0	3

**Total Hours: 27 Credit Hours**

*Suggested Sequence: 1) Semester 1: 201, 207, 212, 255; Semester 2: 213, 256, 285; Semester 3: 281.*

## Course Descriptions for Computer Information Systems Technology (CIS)

Course #	Course Title	Theory Contact Hours/Wk	Lab Contact Hours/Wk	Credit Hours
<b>CIS-103</b>	<b>INTRODUCTORY COMPUTER SKILLS II</b>	<b>3</b>	<b>0</b>	<b>3</b>
<p>This course is for students without a high school diploma or GED. This course is not creditable toward associate degree requirements. This course is designed to focus on the development of computer skills suited to the needs of students in non-degree occupational programs. The course will generally use software packages appropriate to occupational programs and may include such topics as word processing, database, basic graphics, spreadsheets or other features typically needed in the field. Upon completion, the student will be able to demonstrate proficiency by the completion of appropriate assignments and occupation-specific applications. This course is offered each term.</p>				
<b>CIS-110</b>	<b>INTRO TO COMPUTER LOGIC &amp; PROGRAMMING</b>	<b>3</b>	<b>0</b>	<b>3</b>
<p>This course includes logic, design and problem solving techniques used by programmers and analysts in addressing and solving common programming and computing problems. The most commonly used techniques of flowcharts, structure charts, and pseudocode will be covered and students will be expected to apply the techniques to designated situations and problems. This is a CORE course.</p>				
<b>CIS 111</b>	<b>WORD PROCESSING SOFTWARE APPLICATIONS</b>	<b>3</b>	<b>0</b>	<b>3</b>
<p>This course provides students with hands-on experience using word processing software. Students will develop skills common to most word processing software by developing a wide variety of documents. Emphasis is on planning, developing, and editing functions associated with word processing.</p>				
<b>CIS 113</b>	<b>SPREADSHEET SOFTWARE APPLICATIONS</b>	<b>3</b>	<b>0</b>	<b>3</b>
<p>This course provides students with hands-on experience using spreadsheet software. Students will develop skills common to most spreadsheet software by developing a wide variety of spreadsheets. Emphasis is on planning, developing, and editing functions associated with spreadsheets.</p>				
<b>CIS 115</b>	<b>PRESENTATION GRAPHICS SOFTWARE APPLICATIONS</b>	<b>3</b>	<b>0</b>	<b>3</b>
<p>This course provides students with hands-on experience using presentation graphics software. Students will develop skills common to most presentation graphics software by developing a wide variety of presentations. Emphasis is on planning, developing, and editing functions associated with presentations.</p>				
<b>CIS-117</b>	<b>DATABASE MGMT SOFTWARE APPLICATIONS</b>	<b>3</b>	<b>0</b>	<b>3</b>
<p>CO-REQUISITE: CIS-146 <b>OR</b> Permission of Instructor</p> <p>This course provides students with hands-on experience using database management software. Students will develop skills common to most database management software by developing a wide variety of databases. Emphasis is on planning, developing, and editing functions associated with database management.</p>				
<b>CIS-130</b>	<b>INTRO TO INFORMATION SYSTEMS</b>	<b>3</b>	<b>0</b>	<b>3</b>
<p>PREREQUISITE: High School Graduate or GED</p> <p>This course is an introduction to computers that reviews computer hardware and software concepts such as equipment, operations, communications, programming and their past, present and future impact on society. Topics include computer hardware, various types of computer software, communication technologies and program development using computers to execute software packages and/or to write simple programs. Upon completion, students should be able to describe and use the major components of selected computer software and hardware.</p>				

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
<b>CIS-146</b>	<b>MICROCOMPUTER APPLICATIONS</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: High School Graduate or GED				
This course is an introduction to the most common microcomputer software applications. These software packages should include typical features of applications, such as word processing, spreadsheets, database management, and presentation software. Upon completion, students will be able to utilize selected features of these packages. This course will help prepare students for the MOS and IC3 certification.				
<b>CIS-149</b>	<b>INTRODUCTION TO COMPUTERS</b>	<b>3</b>	<b>0</b>	<b>3</b>
This course is an introduction to computers and their impact on society. The course covers the development of computers, their impact on society, as well as future implications of development of computer and related communication technologies. This course introduces programming and computer operating systems. Upon completion, students will have basic knowledge of computer technology and will be able to perform basic functions with a computer system. The course will help prepare students for the IC <sup>3</sup> certification.				
<b>CIS-155</b>	<b>INTRODUCTION TO MOBILE APP DEVELOPMENT</b>	<b>3</b>	<b>0</b>	<b>3</b>
The purpose of this course is to introduce students to various app development tools for various mobile platforms. Specific topics include: app distribution sources, mobile device operating systems, survey of app development software, processes for design, build, deploying, and optimizing apps. At the conclusion of this course students will be able to design, build, deploy, and optimize a basic app.				
<b>CIS-171</b>	<b>FUNDAMENTALS OF UNIX/LINUX I</b>	<b>2</b>	<b>2</b>	<b>3</b>
CO-REQUISITE: CIS-249 <b>OR</b> Permission of Instructor				
This course presents fundamental applications in Unix/Linux. Included in this course are skills development for OS installation and setup, recompile techniques, system configuration settings, file/folder structures and types, run levels, basic network applications, and scripting. Additionally, the course presents security features from an administrative and user consideration.				
<b>CIS-172</b>	<b>FUNDAMENTALS OF UNIX/LINUX II</b>	<b>2</b>	<b>2</b>	<b>3</b>
CO-REQUISITE: CIS-249 <b>OR</b> Permission of Instructor				
This course is a continuation of DPT171 and includes advanced features of Unix/Linux. Included in the course are web applications, integrated network configurations, file transfer, server administration, system controls, iptables/firewall to secure Unix/Linux systems, and strategic user-group applications specific to administrative network control.				
<b>CIS-182</b>	<b>HELP DESK APPLICATIONS</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: Permission of Instructor				
The main purpose of this course is to provide students with a comprehensive understanding of the helpdesk environment and the knowledge, skills, and abilities necessary to work in the user support industry. Students will learn problem-solving and communication skills that are very valuable when providing user support. Through hands-on exercises and case projects students will learn how to apply their knowledge and develop their ideas and skills.				
<b>CIS-189</b>	<b>CO-OP FOR DPT I</b>	<b>0</b>	<b>6</b>	<b>3</b>
PREREQUISITE: Permission of Instructor				
This course is part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to computer practices in informational technologies environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.				

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
<b>CIS-203</b>	<b>INTRO TO THE INFORMATION HIGHWAY</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: Permission of Instructor				
This course introduces the student to the basic principles of the information highway. Students will be exposed to different network information tools such as electronic mail, network news, gophers, the World Wide Web, browsers, commercial information services and the use of appropriate editors or software to introduce construction of Web environments.				
<b>CIS-207</b>	<b>INTRODUCTION TO WEB DEVELOPMENT</b>	<b>3</b>	<b>0</b>	<b>3</b>
CO-REQUISITE: CIS-201 <b>OR</b> Permission of Instructor				
At the conclusion of this course, students will be able to use specified markup languages to develop basic Web pages.				
<b>CIS-208</b>	<b>WEB AUTHORING SOFTWARE</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-207 <b>OR</b> Permission of Instructor				
This course builds upon basic skills in Web authoring. Various Web authoring tools are introduced. Upon completion students will be able to use these tools to enhance Web sites.				
<b>CIS-209</b>	<b>ADVANCED WEB DEVELOPMENT</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-207				
This is an advanced Web design course emphasizing the use of scripting languages to develop interactive Web sites. Upon completion students will be able to create data driven Web sites. This course helps prepare students for the Certified Internet Webmaster (CIW) Foundations certification.				
<b>CIS-212</b>	<b>VISUAL BASIC PROGRAMMING</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-201 <b>OR</b> Permission of Instructor				
This course emphasizes BASIC programming using a graphical user interface. The course will emphasize graphical user interfaces with additional topics on such topics as advanced file handling techniques, simulation, and other selected areas. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.				
<b>CIS-213</b>	<b>ADVANCED VISUAL BASIC PROGRAMMING</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-212				
This course is a continuation of CIS-212, Visual Basic Programming.				
<b>CIS-222</b>	<b>DATABASE MANAGEMENT SYSTEMS</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-117 <b>OR</b> Permission of Instructor				
This course will discuss database system architectures, concentrating on Structured Query Language (SQL). It will teach students how to design, normalize and use databases with SQL, and to link those to the Web.				
<b>CIS-249</b>	<b>MICROCOMPUTER OPERATING SYSTEMS</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: High School Graduate or GED				
This course provides an introduction to microcomputer operating systems. Topics include a description of the operating system, system commands, and effective and efficient use of the microcomputer with the aid of its system programs. Upon completion, students should understand the function and role of the operating system, its operational characteristics, its configuration, how to execute programs, and efficient disk and file management. Credit for this course is available by department exam.				
<b>CIS-250</b>	<b>E-COMMERCE</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-149 <b>OR</b> Permission of Instructor				
This course is an introduction into e-commerce. Topics include marketing, building an e-commerce store, security, and electronic payment systems. Upon completion students will be able to build an e-commerce presence.				



<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
<b>CIS-255</b>	<b>JAVA PROGRAMMING</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-201 <b>OR</b> Permission of Instructor				
This course is an introduction to the Java programming language. Topics in this course include object-oriented programming constructs, Web page applet development, class definitions, threads, events and exceptions. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.				
<b>CIS-256</b>	<b>ADVANCED JAVA</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-255				
This course is a second course of a sequence using the Java programming language. Topics include: Sun's Swing GUI components, JDBC, JavaBeans, RMI, servlets, and Java media framework. Upon completion, the student will be able to demonstrate knowledge of the topics through programming projects and appropriate exams.				
<b>CIS-264</b>	<b>BUSINESS APPLICATIONS</b>	<b>3</b>	<b>0</b>	<b>3</b>
CO-REQUISITE: CIS146 <b>OR</b> CIS149 <b>OR</b> Permission of Instructor				
Prior programming training is put to use in implementing a practical business application such as accounts receivable, accounts payable, payroll, or other business system. A different application is selected each semester. Instructor will provide student with the necessary data and the student will create all the programs that are necessary to produce the expected results. This course will require outside laboratory time to produce programs for evaluation. Mastery of the language selected for the study, at the desired level, is required.				
<b>CIS-265</b>	<b>END USER AND DESKTOP APPLICATIONS SUPPORT I</b>	<b>3</b>	<b>0</b>	<b>3</b>
CO-PREREQUISITE: CIS-249 <b>OR</b> CIS-269 <b>OR</b> Permission of Instructor				
This course covers the knowledge and skills necessary to support desktop operating systems in a corporate or small business environment.				
<b>CIS-266</b>	<b>END USER AND DESKTOP APPLICATIONS SUPPORT II</b>	<b>3</b>	<b>0</b>	<b>3</b>
CO-PREREQUISITE: CIS-265 <b>OR</b> Permission of Instructor				
CO REQUISITE: NONE				
This course covers the knowledge and skills necessary to support end users in a corporate environment.				
<b>CIS-268</b>	<b>SOFTWARE SUPPORT</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-149 <b>OR</b> Permission of Instructor				
This course provides students with hands-on practical experience in installing computer software, operating systems, and troubleshooting. The class will help to prepare participants for the A+ Certification sponsored by CompTIA. This is a CORE course.				
<b>CIS-269</b>	<b>HARDWARE SUPPORT</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-149 <b>OR</b> Permission of Instructor				
This course provides students with hands-on practical experience in installation and troubleshooting computer hardware. The class will help to prepare participants for the A+ Certification sponsored by CompTIA. This is a CORE course.				
<b>CIS-270</b>	<b>CISCO CCENT/CCNA I</b>	<b>2</b>	<b>2</b>	<b>3</b>
PREREQUISITE: CIS-149 <b>OR</b> Permission of Instructor				
This course is the first part of a four-part curriculum leading to Cisco Certified Network Associate (CCNA) certification. This course concentrates on the physical part of networking including basic electronics, computer basics, network basics, TCP/IP addressing, number conversions, cabling, and planning. After completing this course the student will be able to: identify the functions of each layer of the OSI reference model; describe data link and network addresses; define and describe the function of the MAC address; explain the five conversion steps of data encapsulation; describe the different classes of IP addresses and subnetting; identify the functions of the TCP/IP network-layer protocols.				

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
<b>CIS-271</b>	<b>CISCO CCENT/CCNA II</b>	<b>2</b>	<b>2</b>	<b>3</b>
CO-REQUISITE: CIS-270 <b>OR</b> Permission of Instructor				
This course is the second part of a four-part curriculum leading to Cisco Certified Network Associate (CCNA) certification. This course concentrates on router configuration. After completing this course the student will be able to: prepare the initial configuration of a router and enable IP; control router passwords and identification; configure IP addresses; add the RIP and IGRP routing protocols to a configuration.				
<b>CIS-272</b>	<b>CISCO CCNA III</b>	<b>2</b>	<b>2</b>	<b>3</b>
PREREQUISITE: CIS-271 <b>OR</b> Permission of Instructor				
This course is the third part of a four-part curriculum leading to Cisco Certified Network Associate (CCNA) certification. This course concentrates on LAN design, routing, switching, and network administration. After completing this course the student will be able to: describe LAN segmentation using bridges, routers, and switches; distinguish between cut-through and store and forward LAN switching; describe the operation of the Spanning Tree Protocol and its benefits; describe the benefits of virtual LANs.				
<b>CIS-273</b>	<b>CISCO CCNA IV</b>	<b>2</b>	<b>2</b>	<b>3</b>
CO-REQUISITE: CIS-272 <b>OR</b> Permission of Instructor				
This course is the fourth part of a four-part curriculum leading to Cisco Certified Network Associate (CCNA) certification. This course concentrates on WANs and WAN design. After completing this course the student will be able to: differentiate between LAPB, Frame Relay, ISDN, HDLC, PPP, and DDR; list commands to configure Frame Relay LMIs, maps, and sub-interfaces; identify PPP operations to encapsulate WAN data on Cisco routers; identify ISDN protocols, function groups, reference points, and channels; describe Cisco's implementation of ISDN BRI.				
<b>CIS-275</b>	<b>WORKSTATION ADMINISTRATION</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: Permission of Instructor				
This course provides a study of client system administration in a network environment. Topics include installing, monitoring, maintaining, and troubleshooting client operating system software and managing hardware devices and shared resources. Students gain hands-on experience in client operating system installation and basic administration of network workstations.				
<b>CIS-276</b>	<b>SERVER ADMINISTRATION</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-275 <b>OR</b> Permission of Instructor				
This course introduces network operating system administration. Topics included in this course are network operating system software installation, administration, monitoring, and maintenance; user, group, and computer account management; shared resource management; and server hardware management. Students gain hands-on experience in managing and maintaining a network operating system environment.				
<b>CIS-280</b>	<b>NETWORK SECURITY</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-270 <b>OR</b> Permission of Instructor				
This course provides a study of threats to network security and methods of securing a computer network from such threats. Topics included in this course are security risks, intrusion detection, and methods of securing authentication, network access, remote access, Web access, and wired and wireless network communications. Upon completion students will be able to identify security risks and describe appropriate counter measures.				
<b>CIS-281</b>	<b>SYSTEM ANALYSIS &amp; DESIGN</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-201 <b>OR</b> Permission of Instructor				
This course is a study of contemporary theory and systems analysis and design. Emphasis is placed on investigating, analyzing, designing, implementing, and documenting computer systems. Upon completion, the student will be able to demonstrate knowledge of the topics through the completion of programming projects and appropriate tests.				

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
<b>CIS-282</b>	<b>COMPUTER FORENSICS</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-201 <b>OR</b> Permission of Instructor				
This course introduces students to methods of computer forensics and investigations. This course helps prepare students for the International Association of Computer Investigative Specialists (IACIS) certification.				
<b>CIS-284</b>	<b>DPT INTERNSHIP</b>	<b>0</b>	<b>6</b>	<b>3</b>
PREREQUISITE: Within 2 semesters of graduation <b>OR</b> EXPRESS Permission of Instructor				
This course is designed to provide the student with an opportunity to work in a degree/program related environment. Emphasis is placed on the student's "real world" work experience as it integrates academics with practical applications that relate meaningfully to careers in the computer discipline. Significance is also placed on the efficient and accurate performance of job tasks as provided by the "real world" work experience. Grades for this course will be based on a combination of the employer's evaluation of the student, and the contents of a report submitted by the student. Upon completion of this course, the student should be able to demonstrate the ability to apply knowledge and skills gained in the classroom to a "real world" work experience.				
<b>CIS-285</b>	<b>OBJECT ORIENTED PROGRAMMING</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-201 <b>OR</b> CIS-212 <b>OR</b> Permission of Instructor				
This course is an advanced object-oriented programming course and covers advanced program development techniques and concepts in the context of an object-oriented language. Subject matter includes object-oriented analysis and design, encapsulation, inheritance, polymorphism (operator and function overloading), information hiding, abstract data types, reuse, dynamic memory allocation, and file manipulation. Upon completion, students should be able to develop a hierarchical class structure necessary to the implementation of an object-oriented software system.				
<b>CIS-287</b>	<b>SQL SERVER</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: CIS-117 <b>OR</b> Permission of Instructor				
This course will provide students with the technical skill required to install, configure, administer and troubleshoot SQL Server client/server database management system. At the completion of this series students will be able to: identify the features of SQL Server and the responsibilities and challenges in system administration; identify the benefits of integrating SQL Server and setup clients for SQL Server; install and configure SQL Server; manage data storage using database devices and partition data using segments; manage the user accounts; manage user permissions; identify the various task scheduling and alerting abilities of SQL Executive; identify the concepts used in replication and implement replication of data between two SQL Services; identify the types of backup and create backup devices; identify the factors effecting SQL Server performance and the need for monitoring and tuning; locate and troubleshoot problems that occur on the SQL Server.				
<b>CIS-291</b>	<b>CASE STUDY IN COMPUTER SCIENCE</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: Within 2 semesters of graduation <b>OR</b> EXPRESS Permission of Instructor				
This course is a case study involving the assignment of a complete system development project for analysis, programming, implementation, and documentation. Topics include planning system analysis and design, programming techniques, coding and documentation. Upon completion, students should be able to design, code, test and document a comprehensive computer information system (This is a capstone course).				
<b>CIS-294</b>	<b>SPECIAL TOPICS</b>	<b>3</b>	<b>0</b>	<b>3</b>
PREREQUISITE: Permission of Instructor				
This course allows study of currently relevant computer science topics, with the course being able to be repeated for credit for each different topic covered. Course content will be determined by the instructor and will vary according to the topic being covered. Upon completion, the student will be able to demonstrate knowledge of the course topic through completion of assignments and appropriate tests.				

<b>Course #</b>	<b>Course Title</b>	<b>Theory Contact Hours/Wk</b>	<b>Lab Contact Hours/Wk</b>	<b>Credit Hours</b>
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**CIS-296 SPECIAL TOPICS**

**0 6 3**

PREREQUISITE: Permission of Instructor

This course allows study of currently relevant computer science topics, with the course being able to be repeated for credit for each different topic covered. Course content will be determined by the instructor and will vary according to the topic being covered. Upon completion, the student will be able to demonstrate specified skills.

**CIS-297 CO-OP for DPT II**

**3 0 3**

PREREQUISITE: Permission of Instructor

This course is part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to computer practices in informational technologies environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

**CIS-298 CO-OP for DPT III**

**3 0 3**

PREREQUISITE: Permission of Instructor

This course is part of a series wherein the student works in a degree/program related job. Emphasis is placed on student's work experience as it integrates academic knowledge with practical application through exposure to computer practices in informational technologies environment. The grade is based on the employer's evaluation of each student's productivity, content of a descriptive report submitted by the student, and student development and assessment of a learning contract.

**CIS-299 DIRECTED STUDIES IN COMPUTER SCIENCE**

**3 0 3**

PREREQUISITE: Permission of Instructor

This course allows independent study under the direction of an instructor. Topics to be included in the course material will be approved by the instructor prior to or at the beginning of the class. Upon completion, the student will be able to demonstrate knowledge of the topics as specified by the instructor.

NOTES: **Draft Notes and Subject to Change**

### **Required Technical Core (RTC):**

The RTC have been modified from all previous versions of the Program of Study or Degree Plans in Computer Information Systems so that we might be able to improve upon our students skills in specific areas of IT. These areas are: 1) Web Design; 2) Networking Cisco; 3) A+ coursework; 4) Programming; and 5) Operating Systems in Open Source. Within these courses, the CIS-149 is intended to provide exposure to Windows Operating Systems fundamentals, general concepts within the IT area, how to use the basic components of the PC/Laptop, and an overview of the CIS Program of Study, expectations, etc.

### **NOTES & Recommendations:**

1. All courses in the CIS Program have components in Moodle and are Web Based with simulations, YouTube videos, projects, YouTube; including the Syllabus, rubrics, and so forth;
2. Select one of the Short Term Certificates and convert it to a Blended Short Term Certificate, so that it can be offered online in its entirety to attract additional students;
3. All courses are identified as to what certifications they prepare students to attempt, and the courses are identified in the sequence that they should be taken, less any transfer or CLEP input;
4. All courses should be reviewed against the new STARS advising that is now required;
5. Labs should be equipped with reliable chairs, current applications, and links to online cloud-based services, such as Adobe CC, Office 365, etc. (Cloud computing is the present practice in many IT Centers, and we should be teaching our students how to use these services.);
6. We should consider group learning which would help those who struggle with materials; for the online classes, use group projects via SKYPE or other sharing app (Moodle?);
7. Suggest a minimum of 3 SLOs per class that translates into the PLOs for the Program of Study;
8. Each core class should provide 5 questions for the Exit Exam in the capstone course so that students can take the exit exam with three attempts. This is in fact a SACSCOC requirement, and needs to be addressed in our DPT291 course in Fall 2016. The Exit Exam should be a P/F with 3 attempts and an objective baseline score of 70% on the materials. NOTE: The P/F could be named something other than P/F, but SACSCOC is rather picky about Capstone courses being formatted as exit assessment tools, including elements of validation, e.g., at least one item that might become an artifact for an ePortfolio; An ePortfolio component is also being added and an exit set of questions, or other similar assessment material for the Exit Exam. A discussion on this needs to begin fairly soon...
9. Online tutoring might become a resource that our students could use to improve their outcomes;
10. Review the elective offerings and reduce those to a minimal set of crucially important courses that give students options to learn something of interest and highly important to their skill set;
11. If I think of something else, I will write it down;
12. See Number 11 above.

**Other Notes:**

1. Might we consider that in the core, each student should keep one item from each course through their entire Plan of Study to use in the Capstone Course ePortfolio. If so, we can validate the Exit Exam in two ways: a) the exit exam questions; 2) the ePortfolio. I can develop a rubric for the capstone course to measure/assess SLOs/PLOs for the Plan of Study and capture this data for our next SACSCOC visit or QEP or 5-year review, etc.
2. Might we designate and develop ALL of our courses to be delivered in an online, f2f, and/or blended format over time OR at the very least, select additional courses to offer in f2f, blended, and online formats? In this way, we can reach the maximum number of students and still meet the needs of those who need f2f, or online, or blended. This will require that each selected course have a Moodle structure and, again, the full set of web-based tools. AND, if you have not 'read in' about the Flipped Classroom, and Team Learning, I again, suggest that we discuss these as a prime solution to our instructional strategies.
3. Okay, I'm noted out of notes for the moment. Thoughts???????

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ADVISORY COMMITTEE MEMBERS COMMENTS (Include your name):