

and equilibrium. In the laboratory analytical experiments involving quantitative gravimetric and volumetric experiments are provided. Fee charged. Prerequisite: concurrent enrollment in MATH 1314. Core Curriculum satisfied for Natural Lab Sciences.

CHEM 1412 General Chemistry (Inorganic) (40.0501.52 03) 4.3.4

A continuation of CHEM 1411. Reaction rates, elementary thermodynamics, solution and solution equilibria, electrochemistry, chemistry of the representative elements and nuclear chemistry. The laboratory is a continuation with emphasis on optical and electrical measurements of quantitative experiments; in this term use is also made of a system of qualitative analysis. Fee charged. Prerequisite: CHEM 1411. Core Curriculum satisfied for Natural Lab Sciences.

CHEM 2423 Organic Chemistry (40.0504.52 03) 4.3.4

Present-day theories and principles of organic chemistry. An integrated introductory course stressing nomenclature of the main classes of compounds; the determination of structure, stereochemistry, resonance and molecular orbital method of chemical bonding; reaction mechanisms and techniques or organic synthesis. Fee charged. Prerequisite: CHEM 1412 or 1407 with consent of instructor. Core Curriculum satisfied for Natural Lab Sciences.

CHEM 2425 Organic Chemistry (40.0504.52 03) 4.3.4

Continuation of CHEM 2423. Emphasis on reaction mechanisms, carbohydrates, fats, amino acids, heterocyclic, alkaloids and natural products. The laboratory emphasis is organic qualitative analysis. Fee charged. Prerequisite: CHEM 2423. Core Curriculum satisfied for Natural Lab Sciences.

Computer Information Systems

With the continual development and use of computers in business and industry, the need is increasing for personnel proficient in business programming, networking, equipment repair, software applications, as well as computer operations. To address these skills, the Computer Science Department offers two Associate of Applied Science workforce degrees (AAS), an Associate of Science transfer degree (AS), and two workforce certificate programs.

The Associate of Science (AS) degree is designed to prepare students for transfer to a four-year university as a Computer Science or Computer Information Systems major. The program will provide students with a background in basic academic areas such as mathematics and the sciences, as well as introductory work in the computer areas of logic design, programming concepts, and programming languages.

The department offers an Associate of Applied Science (AAS) degree and a certificate in Computer Information Systems that provides training for careers in business programming, database support, software applications, and computer operations.

The College is an authorized testing site for Microsoft Office Specialist certification exams such as Microsoft Word, Excel, Access, and PowerPoint. Additionally, an Associate of Applied Science (AAS) Computer Networking degree is designed to prepare students to perform tasks in network technology relating to network management, technical support, hardware/software installation, and equipment repair. Network and A+ certification training is available.

The program graduate will be able to assemble computers based on customer requirements, install network wiring and interfaces at customer sites, install and debug network software, and maintain network hardware and software.

Suggested Course of Study for University Transfer Students (68-71 Credit Hours)

Freshman Year	Sophomore Year
COSC 1420	COSC 2420
COSC 1401 or BCIS 1405	GOVT 2305
ENGL 1301	GOVT 2306
ENGL 1302	Lab Science (8 Credit Hours)
HIST 1301	Humanities (3 Credit Hours)
HIST 1302	MATH 1324
MATH 1314	MATH 1325
PHED 1134	Social/Behavioral Science (3 Credit Hours)
PHED Activity (1 Credit Hour)	SPCH 1315 or 1321
Visual/Fine Arts (3 Credit Hours)	

Note: Completion of the Field of Study may require an additional term(s).

AAS IN COMPUTER INFORMATION SYSTEMS (62-63 Credit Hours)

First Semester	Second Semester
ITSC 1405	ITSW 1404
COSC 1401 or BCIS 1405	ITSW 1307
ITSC 1301	ITSC 1425
or COSC 1300	ENGL 1301
MATH 1314	
Third Semester	Fourth Semester
IMED 1316	ACCT 2301
ITSC 2321	COSC 2420
SPCH 1315	ITSC 1364
COSC 1420	GOVT 2306
ITNW 1425	Visual/Fine Arts Elective

CERTIFICATE IN BUSINESS COMPUTER APPLICATIONS**(35 Credit Hours)****First Semester**

POFT 1127 Introduction to Keyboarding*
 ITSC 1301 Introduction to Computers*
 ITSC 1409 Integrated Software Applications*
 ITSC 1405 PC Operating Systems - Windows

Second Semester

ITSW 1404 Introduction to Spreadsheets
 ITSC 2321 Integrated Software Applications II 1
 POFT 2312 Business Correspondence & Communication
 POFT 1321 Business Math

Third Semester

IMED 1316 Web Page Design*
 ACNT 1411 Introduction to Computerized Accounting
 or ACNT 1403 Introduction to Accounting I
 ITSW 1307 Introduction to Database

* Tech Prep course, which may have been completed in high school.

AAS IN NETWORKING (63-64 Credit Hours)

First Semester	Second Semester
ITSC 1409* or COSC 1401 or BCIS 1405 MATH 1314 POFT 1127 ITSC 1405 ENGL 1301	ITSW 1307 ITNW 1425 SPCH 1321 ITSC 1425 IMED 1316
Third Semester	Fourth Semester
ITSC 2339 ITNW 2413 ITNW 2405 ITNW 1451 GOVT 2306	ITSY 1442 ITNW 1454 ITSC 1364 - Practicum (FieldExp.) Visual/Fine Arts Elective

* Tech Prep course, which may have been completed in high school.

CERTIFICATE IN COMPUTER SUPPORT TECH**First Semester**

ITSC 1405 Introduction to PC Operating Systems
 ITSC 1425 Personal Computer Hardware

ITNW 2413..... Networking Hardware

Second Semester

ITNW 2405.....Network Administration

ITNW 1425.....Fundamentals of Networking Technologies

ITSC 2339.....Personal Computer Help Desk Support

ITNW 1451..... Fundamentals of Wireless LANs

CERTIFICATE IN COMPUTER NETWORK TECH

First Semester

ITSC 1405.....Introduction to PC Operating Systems

ITSC 1425.....Personal Computer Hardware

ITNW 2413..... Networking Hardware

Second Semester

ITNW 1425.....Fundamentals of Networking Technologies

ITNW 1451..... Fundamentals of Wireless LANs

ITNW 1454..... Implementing and Supporting Servers

Third Semester

ITNW 2405.....Network Administration

ITSY 1442.....Information Technology Security

ITSC 2339.....Personal Computer Help Desk Support

ITSC 1364..... Practicum: Computer Information Systems

CERTIFICATE IN CISCO/C-TECH (24 Credit Hours)

First Semester

ITCC 1402..... Cisco I: LAN Design & Protocols*

ITNW 1425..... Fundamentals of Networking

Second Semester

ITCC 1406..... Cisco II: Basic Router Configuration*

ITNW 2413..... Networking Hardware

Third Semester

ITCC 1442..... Cisco III: Local Area Management*

ITCC 1446..... Cisco IV: Wide Area Management*

* Tech Prep course, which may have been completed in high school

BCIS 1405 Business Computer Applications 4.3.3

Computer terminology, hardware, software, operating systems and information systems relating to the business environment. The main focus of this course is on business applications of software, including word processing, spreadsheets, databases, presentation graphics, and business oriented utilization of the Internet. Equivalent to COSC 1401.

COSC 1300 Introduction to Computer Information Systems 3.3.0

An introduction to computers, network communications and information systems. The student is provided experience with operating systems, hardware, application software and the use of the Internet for communication and research.

- COSC 1401 Microcomputer Applications** 4.3.3
A study of microcomputer concepts and applications to provide the student an understanding of computer technology, hardware, software and production of meaningful information through the use of integrated application software. Prerequisite: keyboarding skills. Equivalent to BCIS 1405.
- COSC 1420 C++ Programming I** 4.3.3
An introduction to programming using C++. Includes problem solving methods, algorithm development, program design, coding, debugging and documentation. Prerequisite: Math 1314.
- COSC 1430 Object Oriented Programming** 4.3.3
An introduction to problem solving and programming development through the use of object-oriented programming. Prerequisite: Math 1314.
- COSC 2420 C++ Programming II** 4.3.3.
Further application of C++ programming techniques including file access abstract data structures, class inheritance, and other advanced techniques. Student will Develop well documented programs containing complex data structures; incorporate complex input/output file handling techniques; create classes and objects in programs; and incorporate advanced C++ techniques.
- IMED 1316 Web Page Design**
Instruction in web page design and related graphic design issues including mark-up languages, web sites, and browsers. End-of-Course Outcomes: Identify how the Internet functions with specific attention to the World Wide Web and file transfer; apply design techniques in the creation and optimization of graphics and other embedded elements; demonstrate the use of World Wide Web Consortium (W3C) formatting and layout standards; create, design, test and debug a Web site. Prerequisite: ITSC 1405 and COSC 1401 or ITSC 1409.
- ITCC 1402 LAN Design and Protocols: Cisco I** 4.3.4
Skill development in the design and installation of local area networks to ensure optimal throughout. Topics include cabling, cable closets, management devices, selection and installation of network devices, protocols and subnetting. Prerequisite: Consent of Instructor.
- ITCC 1406 Basic Router Configuration: Cisco II** 4.3.4
An introduction to Cisco basic router configuration for local area networks. Topics include initial router configuration for TCP/IP, management of the configuration, backup of router configuration files, routing protocols land the use of security features. Prerequisite: ITCC 1402.

- ITCC 1442 Local Area Management: Cisco III** 4.3.4
Skill development in managing traffic in local area networks (LAN) and in the management of network devices for LANs. This course includes configuring of router for IPX protocol, filtering traffic in an IPX environment, and identifying and resolving network congestion. Prerequisite: ITCC 1406.
- ITCC 1446 Wide Area Management: Cisco IV** 4.3.4
An introduction to wide area networking (WAN) services and management. Prerequisite: ITCC 1442 or concurrent enrollment in ITCC 1442.
- ITNW 1337 Introduction to the Internet** 3.3.2
Introduction to the Internet with emphasis on using the World Wide Web to locate, transfer, and publish information. Survey of emerging technologies on the Internet. Prerequisite: ITSC 1409.
- ITNW 1425 Fundamentals of Networking Technologies** 4.3.3
Instruction in networking technologies and their implementation. Topics include OSI reference model, network protocols, transmission media, and networking hardware and software. End of Course Outcomes: Identify and use network transmission media; explain the OSI model; recognize the primary network topologies/protocols, identify their characteristic, and determine which would be most appropriate for a proposed network; identify the functions of a network operating system and distinguish between centralized, client/serve, and peer-to-peer systems; and distinguish between Local Area Networks (LANs) and Wide Area Networks (WANs) and identify the components used to expand a LAN into a WAN.
- ITNW 1451 Fundamental of Wireless LANs** 4.3.3
Designing, planning, implementing, operating, and troubleshooting wireless LANs (WLANs). Includes WLAN design, installation, and configuration; and WLAN security issues and vendor interoperability strategies. End of Course Outcomes: Explain wireless technologies, topographies, and standards; design, install, configure, monitor, maintain, and troubleshoot wireless NetWorks; and implement wireless security using MAC filtering, Authentication, Authorization and 802.1x technologies.
- ITNW 1454 Implementing and Supporting Servers** 4.3.3
Implement, administer, and troubleshoot information systems that incorporate servers in a networked computing environment. End of Course Outcomes: Configure peripherals and devices; set up servers, configure directory replication; manage licensing; create and manage system policies, and profiles; administer remote servers, and disk resources; create and share resources; implement fault-tolerance; configure servers for interoperability; install and configure Remote Access Service (RAS); and identify and monitor performance bottlenecks and resolve configuration problems.

- ITNW 2405 Network Administration** 4.3.3
Topics include network components, user accounts and groups, network file systems, file system security, and network printing. Describe the components of a local area network and their relationship; create and administer user accounts and groups; plan and set up network file systems; create effective file system security; and implement and administer network printing.
- ITNW 2413 Networking Hardware** 4.3.3
Maintain network hardware devices. Topics include network cables, servers, and workstations; network connectivity devices such as routers, hubs, bridges, gateways, repeaters, and uninterruptible power supplies, and other networking hardware devices. End of Course Outcomes: Build network cables; identify and implement connectivity devices, select appropriate network power management devices; and determine the necessary computer hardware requirements for workstations and servers. Suggested Prerequisite: Fundamentals of Networking or equivalent work experience.
- ITSC 1301 Introduction to Computers** 3.3.0
Overview of computer information systems. Introduces computer hardware, software, procedures, and human resources. End-of-Course Outcomes: Identify the components of a computer system; use common applications; explain the impact of computers on society; identify computer careers; identify fundamental programming structures; identify ethical use of computers; and use basic operating system functions. Suggested Prerequisite: Keyboarding proficiency.
- ITSC 1364 Practicum - Computer Info Systems** 3.1.10
Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. End of Course Outcomes: As outlined in the learning plan, apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry and will demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skill, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry.
- ITSC 1405 Introduction to PC Operating Systems** 4.3.3
A study of personal computer operating systems. Topics include installation and configuration, file management, memory and storage management, control of peripheral devices, and use of utilities. End-of-Course Outcomes: Install, configure, and maintain the operating system; perform basic file management operations; organize and allocate primary and secondary storage; access and control peripheral devices; and run utilities.

- ITSC 1409 Integration of Software Application I** 4.3.3
Integration of applications from popular business productivity software suites. Instruction in embedding data, linking and combining documents using word processing, spreadsheets, databases, and/or presentation media software. End-of-Course Outcomes: Use word processing, spreadsheet, database, and/or presentation media software; apply integration techniques; and produce combined documents. Prerequisite: Keyboarding proficiency.
- ITSC 1425 Personal Computer Hardware** 4.3.3
A study of current personal computer hardware including personal computer assembly and upgrading, setup and configuration, and troubleshooting. End of Course Outcomes: Assemble/setup and upgrade personal computer systems; diagnose and isolate faulty components, optimize system performance; and install/connect peripherals. Prerequisite: ITSC 1405 and COSC 1401 or ITSC 1409.
- ITSC 2321 Integration of Software Application II** 3.3.2
Continued study of computer applications from business productivity software suites. Instruction in embedding data and linking and combining documents using word processing, spreadsheets, databases, and/or presentation media software. End-of-Course Outcomes: Use word processing, spreadsheet, database, and/or presentation media software; apply integration techniques to produce documents; and explain the process of integrating data between applications. Prerequisite: ITSC 1409 or COSC 1401.
- ITSC 2339 Personal Computer Help Desk Support** 3.3.2
Diagnosis and solution of user hardware and software related problems with on-the-job and/or simulated projects. End of Course Outcomes: Demonstrate rapport with users in problem-solving situation; analyze user problems and lead them through solutions; maintain problem logs, and formulate problem-solving methodologies. Prerequisite: ITSC 1405 and COSC 1401 or ITSC 1409.
- ITSW 1307 Introduction to Database** 3.3.2
Introduction to database theory and the practical applications of a database. End-of-Course Outcomes: Identify database terminology and concepts; plan, define, and design a database; design and generate tables, forms, and reports; and devise and process queries.
- ITSW 1404 Introduction to Spreadsheets** 4.3.3
Instruction in the concepts, procedures, and application of electronic spreadsheets. End-of-Course Outcomes: Define spreadsheet terminology and concepts; create formulas and functions; use formatting features; and generate charts, graphs, and reports. Prerequisite: ITSC 1409 or COSC 1401.

- ITSY 1442 Information Technology Security 4.3.3**
 Instruction in security for network hardware, software, and data, including physical security; backup procedures; and relevant tools; encryption; and protection from viruses. End of Course Outcomes: Discuss the physical security of file servers and other network components using NIST Guidelines and Best Practices; develop backup procedures to provide for data security; use network operating system features to implement network security; discuss the nature of computer and network threats and vulnerabilities and methods to prevent their effects; use relevant tools to provide for network security; and use of encryption techniques to protect network data.

Cosmetology

The Cosmetology Department offers students opportunities to prepare for an exciting and challenging career in the professional beauty service industry. The department provides specialty courses in manicuring and esthetician as well as the Operator, Nail Technician, and Cosmetology Instructor certificates. Through clinical settings, students obtain the skills needed to shampoo, cut, and style hair; and skills needed to provide chemical services, facial and scalp treatments, manicures and pedicures. After students complete the program and required clock hours, they are eligible to take the Texas Cosmetology Commission licensing examinations. Graduates from the program have many career opportunities, including owning your own salon, entering the fashion world as an expert makeup or stylist artist, becoming a beauty consultant, or traveling as a stylist for a cruise ship line.

CERTIFICATE IN COSMETOLOGY TRAINING PROGRAM

(39 Credit Hours)

First Semester

CSME 1401	Orientation to Cosmetology
CSME 1405	Fundamentals of Cosmetology
CSME 1310	Intro to Haircutting & Related Theory
CSME 2310	Intermediate Haircutting & Related Theory

Second Semester

CSME 1451	Artistry of Hair Theory & Practice
CSME 1547	Principles of Skin Care /Facials and Related Theory
CSME 2349	Advanced Hair Design

Third Semester (Summer)

CSME 1531	Principles of Nail Technology I
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Fourth Semester

CSME 2401	The Principles of Hair Coloring & Related Theory
CSME 1291	Special Topics in Cosmetology
CSME 2430	Nail Enhancement

CERTIFICATE IN COSMETOLOGY INSTRUCTION (16 Credit Hours)

First Semester

CSME 1434	Cosmetology Instructor I
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