INFORMATION TECHNOLOGY

ASSOCIATE OF APPLIED SCIENCE (AAS) – 60 CREDITS

About this program

This school-to-work degree focuses on customer service and user support, with an emphasis on technical skills, including desktop and network support. Students learn the skills needed to provide technical support to customers and users for issues related to computer systems, hardware, software and local area networks. Additionally, skills are gained to understand the importance of daily maintenance of computer systems and networks, learn to coach users and customers through problem-solving processes, and communicate a solution. Also learned is the use of systems, including office applications, virtualization and operating systems, in addition to analytical, diagnostic, communication and customer service skills.

Program outcomes

1. Apply current technical practices in core information technologies.
2. Identify effective solutions for organizations or individuals.
3. Identify the requirements for effective solutions.
4. Evaluate current and emerging technologies.
5. Demonstrate independent problem-solving skills.
6. Collaborate in teams to accomplish a common goal.
7. Implement basic information security practices across an organization.
8. Recognize the need for continued learning.
9. Demonstrate effective information technology customer service skills.
10. Demonstrate effective use of core networking technologies.

Curriculum overview

Crds	Requirement type
48	Required courses
6	Restricted electives in courses
6	Restricted electives in course types
60	**Total**

Developmental courses note: A student may be required to enroll in developmental courses in reading, writing and math. A student's scores on the Accuplacer assessment will determine enrollment in developmental courses. The purpose of developmental courses is to prepare students for the demands of a college-level curriculum. *Credits may vary.*

Accreditation: Minnesota State Community and Technical College is accredited by the Higher Learning Commission, a regional accreditation agency recognized by the U.S. Department of Education. The Higher Learning Commission 230 South LaSalle Street, Suite 7-500 Chicago, IL 60604-1411 http://www.ncahigherlearningcommission.org Phone: 312.263.0456 / 800.621.7440

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Curriculum requirement details

Required courses

Course	Crds
CPTR1040 - Introduction to Programming Logic	3
CPTR1108 - CISCO 1	3
CPTR1118 - CISCO 2	3
CPTR1121 - Information Technology Service Desk	3
CPTR1125 - IT Essentials I	3
CPTR1130 - IT Essentials II	3
CPTR1135 - Beginning Networking	3
CPTR1148 - Microcomputer Operating System	3
CPTR2100 - Supporting End-User Applications	3
CPTR2224 - Linux I	3
CPTR2236 - Network Security	3
CPTR2240 - Database Administration	3
CPTR2272 - Network Operating Systems	3
ENGL1101 - College Writing	3
HUM2236 - Technology in the Humanities	3
SOC1111 - Introduction to Sociology	3

Other requirements or restricted electives

3 credits from one or more of these Courses:

Course title	Credits
BUS1100 - Business Computers	3
CSCI1110 - Informatics	3

3 credits from one or more of these Courses:

Course title	Credits
CPTR2001 - Scripting for Automation	3
CPTR2200 - CISCO 3	3
CPTR2234 - Linux II	3
CPTR2294 - Internship	3
CSEC2204 - Managing Directory Services	3

6 credits from these Course Types:

- General Education w/MnTC Goals

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Course summaries

CPTR1040 - Introduction to Programming Logic ..... ***(3 credits)***
This course introduces students to computer programming logic and troubleshooting. Students are introduced to algorithm development and structure programming. These concepts are foundational to learning to program and general troubleshooting.

CPTR1108 - CISCO 1 ..... ***(3 credits)***
This is an introduction to networks course that covers the architecture, structure, functions and components of the Internet and other computer networks. Students achieve a basic understanding of how networks operate while building simple local area networks (LANs). Students perform basic configurations for routers and switches and implement Internet Protocol.

CPTR1118 - CISCO 2 ..... ***(3 credits)***
This course covers the architecture, components and operations of routers and switches in small networks and introduces wireless local area networks (WLANs) and security concepts. Students learn how to configure and troubleshoot routers and switches for advanced functionality using security best practices and resolve common issues with protocols in both Internet Protocol Version 4 (IPv4) and Internet Protocol Version 6 (IPv6) networks.

Prerequisites:

- CPTR1108

CPTR1121 - Information Technology Service Desk ..... ***(3 credits)***
This course is an introduction to the IT service desk and user support. Students will be introduced to all aspects of the service desk including the roles, responsibilities, skills needed and role of certifications for the service desk support professional. This course places an emphasis on customer service skills, techniques to develop the necessary skills and application of the skills to difficult customer situations.

CPTR1125 - IT Essentials I ..... ***(3 credits)***
This course is designed for students seeking entry-level computer hardware and software skills. Target students include those who want to prepare for careers in information and communication technology (ICT) and students who want to gain skills and working knowledge of how computers work, how to assemble computers and how to troubleshoot hardware and software issues.

CPTR1130 - IT Essentials II ..... ***(3 credits)***
This is an advanced course for computer hardware, including desktop and laptop personal computers, operating systems, basic IT security and basic networking fundamentals.Topics covered include computer hardware and operating system configurations, building a basic network, networking technologies and protocols, and preventive maintenance and troubleshooting of information technology hardware, software, security and networked devices.

Prerequisites:

- CPTR1125

CPTR1135 - Beginning Networking ..... ***(3 credits)***
This is an introductory networking course designed to expose the student to various components of networking in both home and enterprise settings. Topics covered include various network types, how networks communicate and current networking practices. Wired and wireless networks will be discussed, along with their various layouts and required components. The student also will learn basic best practices for network security and network management.

CPTR1148 - Microcomputer Operating System ..... ***(3 credits)***
This course covers basic information about computer hardware and software and the use of the Windows operating system. Topics include file management techniques, utilizing common screen elements, multitasking, object linking and customizing the desktop.

CPTR2100 - Supporting End-User Applications ..... ***(3 credits)***
This course emphasizes the knowledge, skills and abilities necessary to improve the productivity of the computer user. Students will learn about providing support for the user's computer including the operating system and the software applications installed on the computer.

CPTR2224 - Linux I ..... ***(3 credits)***
This course deals with Linux installation, configuration and system administration. This course lays the groundwork for continued study of Linux.

CPTR2236 - Network Security ..... ***(3 credits)***
This course deals with the understanding of basic network security. Students learn how to manage systems to guard against various security threats.

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CPTR2240 - Database Administration ..... ***(3 credits)***
Students in this course will identify core database concepts and create database models. Installation, configuration and maintenance of a database management system (DBMS) will be covered. Students will analyze and administer a database's performance optimization. Additional topics will include user administration within the database, backup and restoration, and database normalization.

Prerequisites:

- CPTR1040

OR

- CPTR1001

CPTR2272 - Network Operating Systems ..... ***(3 credits)***
This course teaches the functions of a network operating system so the student can effectively maintain and manage a network. The student learns how to establish and oversee the operations of a network, create logins, design and establish directory structures and implement security.

Prerequisites:

- CPTR1122

OR

- CPTR1001

OR

- CPTR1148

OR

- CPTR1125

ENGL1101 - College Writing ..... ***(3 credits)***
Meets MnTC Goal Area 1. This is an introductory course designed to prepare students for later college and career writing through a process approach with particular emphasis on revision. Students consider purpose and audience as they read, discuss and refine their work to develop confidence in their writing and communication skills.

Prerequisites:

- ELL1085
- ENGL0097
- or placement in College Level English.

HUM2236 - Technology in the Humanities ..... ***(3 credits)***
Meets MnTC Goal Areas 2, 6 and 8. Developments in the arts, architecture, science, philosophy and education and studies in human interaction are often provoked by changes in technology. Early changes in military technology made it possible for civilizations to take charge of various places on the world's stage. However, over time, changes in how the world was understood, motivated by general advances in global exploration, astronomy and other sciences as well as specific inventions such as movable type, proved even more instrumental in driving people to new and different understandings of what it means to be human. This course explores how technology impacts developments in a culture's world view and tries to anticipate how future changes in technology might alter the course of otherwise established ways of life.

SOC1111 - Introduction to Sociology ..... ***(3 credits)***
Meets MnTC Goal Areas 2, 5 and 7. This course is an introduction to the study of societies and the social factors that influence individual and group behavior. The course incorporates sociological and other critical thinking models for the investigation of various components of social life: culture, socialization, social organization, social stratification, social institutions, populations dynamics and social change.

BUS1100 - Business Computers ..... ***(3 credits)***
Students will utilize business computer software applications including word processing, spreadsheets, databases and presentation software to solve business problems, emphasizing professional design and organization. Additional topics include basic computer hardware, computer security and ethics, privacy concerns and professional communication standards.

CSCI1110 - Informatics ..... ***(3 credits)***
This course explores how data is gathered and analyzed and how it can be applied to information technology solutions to maximize the benefits of data analysis, including increases in the efficiency and productivity of information systems. Students will explore the social, ethical and personal implications of implementing information technologies and how information processes can impact business on a local and global level.

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CPTR2001 - Scripting for Automation ..... ***(3 credits)***
Students will build on the skills learned in Introduction to Programming and Scripting. Students will learn scripting styles, procedures and methods for system, database, web and network environments.

CPTR2200 - CISCO 3 ..... ***(3 credits)***
This course 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.

CPTR2234 - Linux II ..... ***(3 credits)***
The primary focus of this course is Linux networking, security, ethics and privacy.

CPTR2294 - Internship ..... ***(3 credits)***
This course provides students with the opportunity to apply knowledge and skill sets learned in concurrent coursework. Students will perform activities in an employer-supervised industry setting that is consistent with program outcomes. Students also will utilize interpersonal communication skills within the context of applying knowledge and skill sets.

CSEC2204 - Managing Directory Services ..... ***(3 credits)***
Directory services provide a central repository for information available on a network. In this course, students will learn that the purpose of a directory is to provide information about people and other resources, which supports the increasingly important function of identity management. Students will learn to automate directory service management functions.

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Program Plan — "Fall Start"

Locations: Online

1st Fall Term (15 credits)

Courses

Course	Crds
CPTR1125 - IT Essentials I	3
CPTR1130 - IT Essentials II	3
CPTR1135 - Beginning Networking	3
HUM2236 - Technology in the Humanities	3

3 credits in one or more of the following:

BUS1100 - Business Computers 3
CSCI1110 - Informatics 3

1st Spring Term (15 credits)

Courses

Course	Crds
CPTR1040 - Introduction to Programming Logic	3
CPTR1108 - CISCO 1	3
CPTR1148 - Microcomputer Operating System	3
ENGL1101 - College Writing	3
SOC1111 - Introduction to Sociology	3

2nd Fall Term (15 credits)

Courses

Course	Crds
CPTR1118 - CISCO 2	3
CPTR1121 - Information Technology Service Desk	3
CPTR2224 - Linux I	3
CPTR2272 - Network Operating Systems	3

3 credits in one or more of the following:

General Education w/MnTC Goals

2nd Spring Term (15 credits)

Courses

Course	Crds
CPTR2100 - Supporting End-User Applications	3
CPTR2236 - Network Security	3
CPTR2240 - Database Administration	3

3 credits in one or more of the following:

CPTR2001 - Scripting for Automation 3
CPTR2200 - CISCO 3 3
CPTR2234 - Linux II 3
CPTR2294 - Internship 3
CSEC2204 - Managing Directory Services 3

3 credits in one or more of the following:

General Education w/MnTC Goals

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