INFORMATION TECHNOLOGY
ASSOCIATE OF SCIENCE (AS) – 60 CREDITS

About this program

The Information Technology Associate of Science degree prepares students to continue to work toward a bachelor's degree or enter the workforce. Students learn to use various hardware and software systems to solve problems for people and organizations. Students work with networking technologies, applications, web technologies and database technologies. Students focus on the selection, application and administration of information technologies. The degree minimizes the number of credits required to complete a bachelor's degree at selected institutions. The degree is an ideal mix of practical experience and general education for a field that is constantly evolving.

Program outcomes

1. Apply current technical practices in the core information technologies.
2. Identify the requirements to provide effective solutions for organizations or individuals.
3. Identify effective IT-based solutions.
4. Evaluate current and emerging technologies.
5. Identify the impact of technology on individuals, organizations and society, including ethical, legal and policy issues.
6. Demonstrate an understanding of best practices and standards.
7. Demonstrate independent problem-solving skills.
8. Collaborate in teams to accomplish a common goal.
9. Communicate effectively and efficiently with clients, users and peers.
10. Recognize the need for continued learning throughout one's career.

Curriculum overview

Crds	Requirement type
46	Required courses
14	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
COMM1120 - Introduction to Public Speaking	3
CPTR1001 - Introduction To Programming and Scripting	3
CPTR1040 - Introduction to Programming Logic	3
CPTR1108 - CISCO 1	3
CPTR1122 - System Maintenance	3
CPTR2001 - Scripting for Automation	3
CPTR2224 - Linux I	3
CPTR2245 - Enterprise Network Technologies	3
CSCI1110 - Informatics	3
CSEC1110 - Fundamentals of IT Security	3
CSEC2204 - Managing Directory Services	3
ENGL1101 - College Writing	3
HUM2236 - Technology in the Humanities	3
MATH1114 - College Algebra	4
PSYC1200 - General Psychology	3

Other requirements or restricted electives

14 credits from these Course Types:

- General Education w/MnTC Goals

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Course summaries

COMM1120 - Introduction to Public Speaking ..... ***(3 credits)***
Meets MnTC Goal Area 1. This course clarifies the process of oral communication, clarifies the basic principles of public speaking and allows the student to increase the application of these principles while both speaking and listening.

Prerequisites:

- Assessment into ENGL 1101

CPTR1001 - Introduction To Programming and Scripting ..... ***(3 credits)***
This course is an introduction to computer programming. Emphasis will be on programming concepts, program design methodology, program debugging, problem solving and writing clear code.

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.

CPTR1122 - System Maintenance ..... ***(3 credits)***
The focus of this course is troubleshooting computers and computing-related equipment. The course begins with an overview of basic electronics and progresses to building and troubleshooting computing equipment and IoT (Internet of Things) devices. It also deals with optimizing the performance of systems.

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.

Prerequisites:

- CPTR1001

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.

CPTR2245 - Enterprise Network Technologies ..... ***(3 credits)***
This course will introduce information technologies used in an enterprise network environment. This course follows computing development from single hardware/single operating system operation to virtualization to container technology to implementation on the cloud. Students work with technology from each phase of computing development. The class discusses current trends within enterprise networking.

Prerequisites:

- CPTR1108

OR

- CPTR1040

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.

CSEC1110 - Fundamentals of IT Security ..... ***(3 credits)***
Security is an important component of information technology. This course introduces industry-recommended security guidelines and controls. Students will practice implementing several examples of controls and encrypting data in transit and for storage.

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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.

Prerequisites:

- CPTR1040

OR

- CPTR1148

OR

- CPTR1122

OR

- CPTR1001

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.

MATH1114 - College Algebra ..... ***(4 credits)***
Meets MnTC Goal Areas 2 and 4. This course includes rational, polynomial, exponential, logarithmic, inverse and quadratic functions. The course also includes equations, inequalities, complex numbers and systems of linear equations. Additional topics may include matrices and determinants.

Prerequisites:

- MATH1020

OR

- Placement Exam

PSYC1200 - General Psychology ..... ***(3 credits)***
Meets MnTC Goal Areas 5 and 9. This is a comprehensive introductory overview of psychology that studies human behavior and mental processes. Topics include (but are not limited to) research methods, the history of psychology, neuroscience and behavior, developmental psychology, sensation and perception, motivation and emotion, health psychology, learning and memory, personality, social psychology, psychopathology and treatments, and states of consciousness such as sleep and dreams.

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Program Plan — "Fall Start"

Locations: Moorhead

1st Fall Term (16 credits)

Courses

Course	Crds
COMM1120 - Introduction to Public Speaking	3
CPTR1040 - Introduction to Programming Logic	3
CPTR1122 - System Maintenance	3
CSCI1110 - Informatics	3
MATH1114 - College Algebra	4

1st Spring Term (15 credits)

Courses

Course	Crds
CPTR1108 - CISCO 1	3
CPTR2224 - Linux I	3
CSEC1110 - Fundamentals of IT Security	3
ENGL1101 - College Writing	3

3 credits in one or more of the following:

General Education w/MnTC Goals

2nd Fall Term (15 credits)

Courses

Course	Crds
CPTR1001 - Introduction To Programming and Scripting	3
CSEC2204 - Managing Directory Services	3
HUM2236 - Technology in the Humanities	3
PSYC1200 - General Psychology	3

3 credits in one or more of the following:

General Education w/MnTC Goals

2nd Spring Term (14 credits)

Courses

Course	Crds
CPTR2001 - Scripting for Automation	3
CPTR2245 - Enterprise Network Technologies	3

8 credits in one or more of the following:

General Education w/MnTC Goals

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