Computer/Information Systems

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Degree(s)

Transfer:
A.S.-T in Computer Science for Transfer
(using General Education Requirements Option C)

See: also
A.A. in Liberal Arts - Business & Technology Emphasis

Non-Transfer:
A.S. in Computer Information Systems
(with General Education Requirements Option A)

Certificate(s)
Certificate in General Track
Certificate in Internet Authoring
Certificate in Networking
Certificate in Programming

Employment Concentration Certificate(s)
Computer Forensics
Computer Hardware Specialist
Internet Authoring Specialist

Program Description

Computer Information Systems are the tools that facilitate the effective and efficient transformation of data into information. MSJC’s CIS program is designed to provide students with the knowledge and skills required to gain entry level employment as computer programmers, and/or software/system administration technicians.

The requirement and knowledge and hands-on experience in microcomputer applications, programming, operating systems, and networking. The program in Computer Information Systems offers students an opportunity to earn a transfer degree in Computer Science, a non-transfer CIS Associate degree, State Approved Certificate, or locally approved Employment Concentration. The program offers students the choice of pursuing a transfer degree in Computer Science, an Associate in Science (A.S.) degree in Computer Information Systems or certificate(s) with emphasis in General Track, Internet Authoring, Networking and Programming. The program also offers a transfer preparation. The courses offered will transfer to California State University/University of California systems, and other four-year colleges.

These programs offer students a well-equipped technical environment for instruction and lab. CIS courses are taught in computer equipped classrooms, allowing hands-on experience in the use of industry-standard hardware, application software, operating systems, networking, and programming tools.

Career Opportunities

All career opportunities listed are representative careers in each field. There are no guaranteed positions for students completing these programs. (See: www.onetonline.org)

Transfer Degree

For any BA/BS careers, please see your transfer institution.

Non-Transfer A.S. Degree

Computer and Information Systems Manager - Emphasis in General Track: Networking Technologies Apprentice or Service Desk Hardware Support

Computer Forensic Investigators - Emphasis in General Track: Computer Forensics

Information Researcher - Emphasis in Internet Authoring: Internet and Web Technologies

Network Control Technician - Emphasis in Programming: C++ Programming, Java Programming, SQL Programming, Database Programming or Database Developer

Office and Administrative Support Supervisors and Managers - Emphasis in General Track: Computer Hardware Specialist, Networking Technologies Apprentice or Service Desk Hardware Support

Certificates

General Track

This Certificate is a viable program of study for working professionals who are looking to improve their standing in the workplace by 1) gaining a better understanding of information technologies or 2) by the acquisition of specific job skills.

Computer Forensic Investigator, Computer Systems Analyst, Software Engineer, System Architect, System Designer

Internet Authoring

This Certificate is a viable program of study for working professionals who are looking to improve their standing in the workplace by 1) gaining a better understanding of information technologies or 2) by the acquisition of specific job skills.
Web Developer, Internet Developer, Web Designer, Web Publisher, Web Technologies, Application Developer, Software Application Developer

**Networking**
This Certificate is a viable program of study for working professionals who are looking to improve their standing in the workplace by 1) gaining a better understanding of information technologies or 2) by the acquisition of specific job skills.

Computer Forensic Investigator, Software Engineer, System Architect, Computer Systems Analyst, System Designer

**Programming**
This Certificate is a viable program of study for working professionals who are looking to improve their standing in the workplace by 1) gaining a better understanding of information technologies or 2) by the acquisition of specific job skills.

**Employment Concentrations**
Students who are interested in obtaining an advanced degree in one of the Computing & Information Technology disciplines are encouraged to supplement their bachelors/masters programs with a program of study that may be pertinent to their career interest.

**Computer Forensics**
Private Detective, Investigator

**Computer Hardware Specialist**

**Internet Authoring Apprentice**
Web Developer, Internet Developer, Web Designer, Web Publisher, Web Technologies, Application Developer, Software Application Developer

**Transfer Preparation**

**Computer Science**
MSJC offers a range of course work to prepare students to transfer to four-year colleges and universities. All four-year institutions prescribe their own standards for course evaluation and admissions. Prospective transfer students are advised to research careers, degrees and majors in the Career/Transfer Center, access www.assist.org, review the MSJC catalog and meet with a counselor to expedite their transfer plan.

**Computer Information Systems**
MSJC offers a range of course work to prepare students to transfer to four-year colleges and universities. Courses that fulfill major requirements for an associate degree in this program might not be the same as those required for transfer into the major at a four-year university. All four-year institutions prescribe their own standards for course evaluation and admissions. Prospective transfer students are advised to research careers, degrees and majors in the Career/Transfer Center, access www.assist.org, review the MSJC catalog and meet with a counselor to expedite their transfer plan.

**Learning Outcomes**
- Recognize that a system consists of people, procedures, hardware, software, and data within a global environment.
- Apply systems concepts in the investigation, evaluation, and resolution of information technology problems.
- Recognize how the very large amounts of data collected by modern organizations can be used to review, redesign, and improve processes.
- Employ applications software and software tools in the application of information technologies to help individuals, groups, and organizations achieve their goals.
- Analyze existing processes based on interviewing, observation, documentation, analysis and other similar methods.
- Research and apply industry reference models and best practices in order to improve process designs.
- Assess, manage, and control IT risks.
- Demonstrate working effectively as a member of the team to accomplish common goals.
- Analyze technical information, as well as listen effectively to, communicate orally with, and prepare memos, reports and documentation for a wide range of audiences.
- Investigate and assess new sources of information and learning opportunities to stay abreast of emerging information and computing technologies.
- List career paths related to the program of study, as well as any qualifications and/or professional certifications that may be associated with those careers.

**Degrees**

**Transfer A.S.-T Degree**

**Computer Science**
The curriculum in Computer Science is designed to provide the transfer student the opportunity to earn an Associate in Science in Computer Science for Transfer degree. Computer Science is the study of computers, their design, and their uses for computation, data processing, and systems control, including design and development of computer hardware and software, and programming. Computer Science provides a foundation of knowledge for working professionals who are looking to improve their standing in the workplace by 1) gaining a better understanding of information technologies or 2) by the acquisition of specific job skills.

Prospective transfer students are advised to research careers, degrees and majors in the Career/Transfer Center, access www.assist.org, review the MSJC catalog and meet with a counselor to expedite their transfer plan. The major required for an A.S.-T in Computer Science for Transfer may be met by:
- Completion of 60 semester units or 90 quarter units that are eligible for transfer to the California State University.
- The Intersegmental General Education Transfer Curriculum (IGETC).
- A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.
- Obtainment of a minimum grade point average of 2.0.
ADT also requires that students must earn a C or better in all courses required for the major or area of emphasis. A “P” (Pass) grade is acceptable if pass is defined as a grade of C or better. (30 units)

A.S.-T in Computer Science for Transfer (30 units)

CSIS-113A  C++ Programming - Level 1  3 units  
or
CSIS-113B  Java Programming - Level 1  3 units
CSIS-118B  Computer Organization & Assembly Language 3 units
CSIS-211  Introduction to Data Structures and Algorithms 3 units
CSIS-213  Discrete Structures  3 units
MATH-211  Analytic Geometry and Calculus I  5 units
MATH-212  Analytic Geometry and Calculus II  5 units  
or
MATH-212H  Honors Analytic Geometry and Calculus II  5 units
PHY-201  Mechanics and Wave Motion  4 units
PHY-202  Electricity and Magnetism  4 units  
or
PHY-202H  Honors Electricity and Magnetism  4 units

Units for Major  30
IGETC General Education Pattern  37
Possible double counting  7
Transferable Electives (as needed to reach 60 CSU transferable units)
Total Units for A.S.-T Degree  60 units

This Associate in Science in Computer Science for Transfer degree is intended for students who plan to complete a bachelor's degree in a similar major at a CSU campus. A student completing this degree is guaranteed admission to the CSU system, but not a particular campus or major. Students should meet with a counselor to develop an educational plan and receive university admission and transfer requirements.

Non-Transfer Degree

Computer Information Systems

An Associate degree in CIS may be earned by completing a CIS State Certificate in General Track, Internet Authoring, Programming, or Networking (18 units) as well as all MSJC General Education Option A requirements (a total of 60 units).

Certificates

General Track (18 units)

The General Track Certificate is designed to give students a wide breadth of knowledge in Computer Information Systems. A General Track certificate will enable students to seek employment in a variety of computer related fields.

Required Courses (18 units)

CSIS-090  CCNA I Introduction to Networks  3 units
CSIS-101  Introduction to Computers and Data Processing 3 units
CSIS-103  Introduction to the Internet  3 units
CSIS-111B  Fundamentals of Computer Programming  3 units
CSIS-114A  SQL Programming - Level 1  3 units
CSIS-201  System Analysis and Design  3 units

Internet Authoring (18 units)

Required Courses (15 units)

CSIS-103  Introduction to the Internet  3 units
CSIS-114A  SQL Programming - Level 1  3 units
CSIS-115A  Web Development - Level 1  3 units
CSIS-116B  Developing ASP.NET Web Applications  3 units
or
CSIS-116D  PHP Web Development  3 units
CSIS-125A  Web Development - Level 2  3 units

Elective Courses (3 units)

CSIS-113B  Java Programming - Level 1  3 units
CSIS113C  C# Programming - Level 1  3 units
CSIS-116E  Python Programming - Level 1  3 units
CSIS-124A  SQL Programming - Level 2  3 units

Programming (18 units)

Required Courses (6 units)

CSIS-118B  Computer Organization & Assembly Language  3 units
CSIS-201  System Analysis and Design  3 units

Programming Elective Courses (6 units)

Select a Level 1 & Level 2 course from the same language
CSIS-113A  C++ Programming - Level 1  3 units
CSIS-123A  C++ Programming - Level 2  3 units
or
CSIS-113B  Java Programming - Level 1  3 units
CSIS-113C  C# Programming - Level 1  3 units
or
CSIS-123B  Java Programming - Level 2  3 units
CSIS-123C  C# Programming - Level 2  3 units
or
CSIS-116E  Python Programming - Level 1  3 units
CSIS-126E  Python Programming - Level 2  3 units

Note: Every effort has been made to keep program information current. Please use this information as a guide and consult with the chair of the department/program or an MSJC counselor.
Instructional Programs

Addition Elective Courses (6 units)

- CSIS-111B  Fundamentals of Computer Programming  3 units
- CSIS-114A  SQL Programming - Level 1  3 units
- CSIS-115A  Web Development - Level 1  3 units
- CSIS-116B  Developing ASP.NET Web Applications  3 units
- CSIS-116D  PHP Web Development  3 units
- CSIS-124A  SQL Programming - Level 2  3 units
- CSIS-125A  Web Development - Level 2  3 units
- CSIS-211  Introduction to Data Structures and Algorithms  3 units
- CSIS-214  Principles of Database Management Systems  3 units

Employment Concentrations

Computer Forensics (16 units)

- AJ-103  Criminal Evidence  3 units
- AJ-105  Public Safety Report Writing  3 units
- AJ-108  Criminal Investigation  3 units
- CSIS-080  Computer Hardware – Level 1  4 units
- CSIS-182  Computer Forensics  3 units

Computer Hardware Specialist Certification (10 units)

This program of study prepares students for A+ industry certification. In order to obtain that certificate students must take the CompTIA exam. Students can register for these exams at http://www.2test.com and testing facilities are available on campus.

- CSIS-151  Using the OS Command Line Interface  3 units
- CSIS-154  Using and Configuring Windows Operating Systems  3 units
- CSIS-181  Computer Hardware – Level 1  4 units

Internet Authoring Apprentice (9 units)

Foundation Layer (3 units)

- CSIS-103  Introduction to the Internet  3 units

Presentation Layer (3 units)

- CSIS-115A  Web Development - Level 1  3 units

Interactive Layer (3 units)

- CSIS-125A  Web Development - Level 2  3 units