Instructional Programs

Computer Information Systems

San Jacinto Campus
(951) 487-MSJC (6752)
1-800-624-5561
Bil Bergin (951) 487-3530
bbergin@msjc.edu
Don Jenkins (951) 487-3531
djenkins@msjc.edu

Menifee Valley Campus
(951) 672-MSJC (6752)
1-800-452-3335
Dwight Duffie (951) 639-5531
dduffic@msjc.edu
Glenn Stevenson (951) 639-5532
gstevenson@msjc.edu

Degree(s)
Transfer:
None
See:
A.A. in Liberal Arts - Business & Technology Emphasis

Non-Transfer:

(\textit{with General Education Requirements Option A})

Certificate(s)
Certificate in General Track 22228CT.CIS.GEN.98
Certificate in Internet Authoring 11474 CT.CIS.1A.98
Certificate in Networking 11475 CT.CIS.NET.98
Certificate in Programming 22476CT.CIS.PROG.98

Employment Concentration Certificate(s)
(General Track)
Computer Forensics 99999 ECC.AJ.CF
Computer Hardware Specialist 99999 ECC.CIS.A+
Data Analysis and Modeling 99999 ECC.CIS.DAM
Microsoft Office Applications Developer 99999 ECC.CIS.MOAD
Networking Technologies Apprentice 99999 ECC.CIS.NA
OpenOffice Specialist 99999 ECC.CIS.OOS
Service Desk Hardware Support 99999 ECC.CIS.SDHS
Service Desk Software Support 99999 ECC.CIS.SDSS

(\textit{Internet Authoring})
Internet Authoring Apprentice 99999 ECC.CIS.IAA
Internet Authoring Journeyman 99999 ECC.CIS.IAJ

(\textit{Networking})
LAN/WAN Administration CCNA 99999 ECC.CIS.LANWAN.CCNA
Linux System Administrator 99999 ECC.CIS.LSA

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.
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 non-transfer program in Computer Information Systems offers students an opportunity to earn a CIS Associate degree, State Approved Certificate, or locally approved Employment Concentration. The program offers students the choice of pursuing an Associate of 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)

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

General Track Certificate

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

General Track 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


Data Analysis and Modeling

- Administrative Assistant, Computer Specialist, Computer Support Technician, Data Entry and Information Processing Worker, Help-Desk Technician, Statistical Assistant

Microsoft Office Applications Developer

- Administrative Assistant, Help-Desk Technician, Computer Support Specialist, Computer Support Technician, Data Entry and Information Processing Worker, Data Entry Operator

Networking Technologies Apprentice


OpenOffice Specialist

- Computer Support Specialist, Computer Support Technician, Data Entry and Information Processing Worker, Help-Desk Technician

Mt. San Jacinto College 2012-2013 Catalog

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Instructional Programs

Service Desk Hardware Support
   Computer Maintenance Technician, Help-Desk Technician, Computer Service Representative, Computer Repairer, Computer Support Specialist, Computer Support Technician

Service Desk Software Support
   Computer Support Specialist, Computer Support Technician, Customer Service Representative, Data Entry and Information Processing Worker, Data Entry Operator, Desktop Publishing, Help-Desk Technician

Internet Authoring Certificate
   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

Internet Authoring 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.

   Internet Authoring Apprentice
      Web Developer, Internet Developer, Web Designer, Web Developer, Web Publisher, Web Technologies

   Internet Authoring Journeyman
      Web Developer, Internet Developer, Web Designer, Web Developer, Web Publisher, Web Technologies

Internet and Web Technologies
   Electronic Publishing, Web Developer

Networking Certificate
   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

Networking 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.

   LAN/WAN Administration CCNA
      Network Manager and Administrator, Network Specialist

Linux System Administrator
   System Administrator

Microsoft Certified Systems Administrator (MCSA)
   Network Manager, Network Specialist

Security Certified Network Professional (SCNP)
   Network Manager and Administrator, Network Specialist

Programming Certificate
   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 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.

   C++ Programming
      Web Developer, Internet Developer, Web Designer, Web Developer, Web Publisher, Web Technologies

   Database Administration
      Database Administrator

   Database Developer
      Computer Applications Software Engineer

   Database Operator
      Data Entry Operator, Computer Terminal Operator, Key-Entry Operator

   Database Programming
      Database Manager, Database Administration Manager

   Embedded Systems Programming
      Embedded Systems Programmer

   Java Programming
      Computer Application Software Engineer

   Python Programming
      Computer Applications Software Engineer

   SQL Programming
      Computer Applications Software Engineer

   Visual Basic Programming
      Business Programmers, Scientific Programmer, System Programmer

Internet Authoring Certificate
   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

Internet Authoring 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.

   Internet Authoring Apprentice
      Web Developer, Internet Developer, Web Designer, Web Developer, Web Publisher, Web Technologies

   Internet Authoring Journeyman
      Web Developer, Internet Developer, Web Designer, Web Developer, Web Publisher, Web Technologies

Internet and Web Technologies
   Electronic Publishing, Web Developer

Internet Authoring Certificate
   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 Developer, Web Publisher, Web Technologies

Internet Authoring 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.

   Internet Authoring Apprentice
      Web Developer, Internet Developer, Web Designer, Web Developer, Web Publisher, Web Technologies

   Internet Authoring Journeyman
      Web Developer, Internet Developer, Web Designer, Web Developer, Web Publisher, Web Technologies

Internet and Web Technologies
   Electronic Publishing, Web Developer

Networking Certificate
   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

Networking 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.

   LAN/WAN Administration CCNA
      Network Manager and Administrator, Network Specialist

Linux System Administrator
   System Administrator

Microsoft Certified Systems Administrator (MCSA)
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Security Certified Network Professional (SCNP)
   Network Manager and Administrator, Network Specialist

Programming Certificate
   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 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.

   C++ Programming
      Computer Applications Software Engineer, Computer Systems Software Engineer

   Database Administration
      Database Administrator

   Database Developer
      Computer Applications Software Engineer

   Database Operator
      Data Entry Operator, Computer Terminal Operator, Key-Entry Operator

   Database Programming
      Database Manager, Database Administration Manager

   Embedded Systems Programming
      Embedded Systems Programmer

   Java Programming
      Computer Application Software Engineer

   Python Programming
      Computer Applications Software Engineer

   SQL Programming
      Computer Applications Software Engineer

   Visual Basic Programming
      Business Programmers, Scientific Programmer, System Programmer

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.
*Note: The Embedded Systems Programming ECC cannot be used towards a degree or certificate in CIS.

**TRANSFER PREPARATION**

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.

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**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.

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**DEGREE**

An Associate degree in CIS may be earned by completing one Employment Concentration plus the CIS Core requirements (for a combined minimum of 18 units) as well as all MSJC General Education Option A requirements.

**Required Courses (9 units)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSIS-101</td>
<td>Introduction to Computers and Data Processing</td>
<td>3</td>
</tr>
<tr>
<td>CSIS-201</td>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>CSIS-202</td>
<td>Networks and Data Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Courses (9 units)**

Complete any Employment Concentration Certificate with the exception of the Embedded Systems Programming ECC. Depending upon the Employment Concentration selected, the student may be required to complete elective course work to fulfill the minimum 18-unit requirement of the Certificate.

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**CERTIFICATE/EMPLOYMENT CONCENTRATIONS**

Because the Employment Concentrations and the State of California approved Certificates are so integrated, they are laid out together in the following pages. State Approved Certificates may be earned by completing one CIS Employment Concentration with the exception of the Embedded Systems Programming ECC plus the CIS core requirement (9 units) for a combined minimum of 18 units. Depending upon the Employment Concentration selected, the student may be required to complete elective course work to fulfill the minimum 18-unit requirement of the Certificate.

**CIS Core Requirements (9 units)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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</tr>
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<td>CSIS-202</td>
<td>Networks and Data Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

Upon successful completion of any of the Employment Concentrations listed in this section, the student may request a Mt. San Jacinto College Certificate of Completion.

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**GENERAL TRACK**

**Computer Forensics (16 units)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJ-103</td>
<td>Criminal Evidence</td>
<td>3</td>
</tr>
<tr>
<td>AJ-105</td>
<td>Public Safety Report Writing</td>
<td>3</td>
</tr>
<tr>
<td>AJ-108</td>
<td>Criminal Investigation</td>
<td>3</td>
</tr>
<tr>
<td>CSIS-181</td>
<td>Computer Hardware – Level 1</td>
<td>4</td>
</tr>
<tr>
<td>CSIS-182</td>
<td>Computer Forensics</td>
<td>3</td>
</tr>
</tbody>
</table>
Computer Hardware Specialist Certification (12 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
CSIS-183 Green Computing 2 units

Data Analysis and Modeling (9 units)
CAPP-122 Using Microsoft Excel 3 units
CAPP-123 Using Microsoft Access – Level 1 3 units
CAPP-143 Using Microsoft Access – Level 2 3 units

Microsoft Office Applications Developer (9 units)
CAPP-120 Using Microsoft Office – Level 1 3 units
CAPP-140 Using Microsoft Office – Level 2 3 units
CAPP-160 Using Microsoft Office – Level 3 3 units

Networking Technologies Apprentice (10 units)

This program of study prepares students for Network+ 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-190 Network Media 3 units
CSIS-191 Network Hardware – Level 1 4 units
CSIS-202 Networks and Data Communications 3 units

OpenOffice Specialist Certification (6 units)
CAPP-120M Using OpenOffice – Level 1 3 units
CAPP-140M Using OpenOffice – Level 2 3 units

Service Desk Hardware Support (15 units)
CSIS-154 Using and Configuring Windows Operating Systems 3 units
CSIS-171 Service Desk Concepts 3 units
CSIS-171L Service Desk Lab 1 unit
CSIS-181 Computer Hardware – Level 1 4 units
CSIS-191 Network Hardware – Level 1 4 units

Service Desk Software Support (16 units)

Required Courses (4 units)
CSIS-171 Service Desk Concepts 3 units
CSIS-171L Service Desk Lab 1 unit

Elective Courses (12 units)
CAPP-120 Using Microsoft Office – Level 1 3 units
CAPP-120M Using OpenOffice – Level 1 3 units
CAPP-122 Using Microsoft Excel 3 units
CAPP-123 Using Microsoft Access – Level 1 3 units
CAPP-124 Using Microsoft PowerPoint 3 units
CAPP-126G Using Adobe InDesign 3 units
CAPP-127 Using Microsoft Word 3 units
CAPP-135 Using Microsoft Project 3 units
CAPP-140 Using Microsoft Office – Level 2 3 units
CAPP-140M Using OpenOffice – Level 2 3 units
CAPP-143 Using Microsoft Access – Level 2 3 units
CAPP-160 Using Microsoft Office – Level 3 3 units
CSIS-150 Using Microsoft Windows 3 units

INTERNET AUTHORING

Internet Authoring Apprentice (9 units)

Note: A cumulative GPA of 2.0 or higher is required for these courses.

Foundation Layer (3 units)
CSIS-103 Introduction to the Internet 3 units

Presentation Layer (3 units)
CSIS-115A Web Development – Level 1 3 units
CSIS-117D Using Microsoft Expression Web – Level 1 3 units

Interactive Layer (3 units)
CSIS-116G Ruby Programming – Level 1 3 units
CSIS-119A ActionScript Programming – Level 1 3 units
CSIS-125A Web Development – Level 2 3 units

Internet Authoring Journeyman (15 units)

Note: A cumulative GPA of 2.0 or higher is required for these courses.

Foundation Layer (3 units)
CSIS-103 Introduction to the Internet 3 units

Presentation Layer (3 units)
CSIS-115A Web Development – Level 1 3 units
CSIS-117D Using Microsoft Expression Web – Level 1 3 units

Interactive Layer (3 units)
CSIS-116G Ruby Programming – Level 1 3 units
CSIS-119A ActionScript Programming – Level 1 3 units
CSIS-125A Web Development – Level 2 3 units

Business Logic Layer (3 units)
CSIS-116B Developing ASP.NET Web Applications 3 units
CSIS-116D PHP Web Development 3 units

Database Layer (3 units)
CSIS-114A SQL Programming – Level 1 3 units
CSIS-115B XML Design – Level 1 3 units

Internet and Web Technologies (15 units)

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

CSIS-103 Introduction to the Internet 3 units
CSIS-104 Introduction to E-Commerce Infrastructure 3 units
CSIS-115A Web Development – Level 1 3 units
CSIS-125A Web Development – Level 2 3 units
CSIS-202 Networks and Data Communications 3 units

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**NETWORKING**

**LAN/WAN Administration CCNA**  
(Cisco Certified Network Administrator)  
(12 units)

- CSIS-202 Networks and Data Communications 3 units  
- NET-100 Local Area Network Design and Switch Management 3 units  
- NET-101 Layer 3 Routing and Router Management 3 units  
- NET-102 Wide Area Network Design and Protocol Configuration 3 units

**Linux System Administrator (9 units)**

- CSIS-153 Using Unix-Based Operating System 3 units  
- CSIS-223A Linux System Administration – Level 1 3 units  
- CSIS-233A Linux System Administration – Level 2 3 units

**Microsoft Certified Systems Administrator (MCISA) (12 units)**

- CSIS-202 Networks and Data Communications 3 units  
- NET-120 Installing, Configuring, and Administering a Windows Client Operating System 3 units  
- NET-121 Managing and Maintaining a Windows Server Environment 3 units  
- NET-122 Implementing, Managing, and Maintaining a Windows Network Infrastructure 3 units

**Security Certified Network Professional (SCNP) (12 units)**

- CSIS-202 Networks and Data Communications 3 units  
- NET-140 Network Security Fundamentals 3 units  
- NET-141 Hardening the Infrastructure 3 units  
- NET-142 Network Defense and Countermeasures 3 units

**Database Operator (9 units)**

- CSIS-214 Principles of Database Management Systems 3 units  
- CSIS-241A Database Server Administration – Level 1 3 units  
- CSIS-261A Database Server Administration – Level 2 3 units

**Database Programming (9 units)**

- CSIS-114C Database Programming – Level 1 3 units  
- CSIS-124C Database Programming – Level 2 3 units

*Embedded Systems Programming (9 units)*

- CSIS-118A Embedded Systems Programming 3 units  
- CSIS-118B Computer Organization & Assembly Language 3 units  
- CSIS-188 Introduction to Digital Circuits 3 units

*Note: The Embedded Systems Programming ECC cannot be used towards a degree or certificate in CIS.*

**Programming**

**C++ Programming (6 units)**

- CSIS-113A C++ Programming – Level 1 3 units  
- CSIS-123A C++ Programming – Level 2 3 units

**Database Administration (15 units)**

- CSIS-114A SQL Programming – Level 1 3 units  
- CSIS-114C Database Programming – Level 1 3 units  
- CSIS-214 Principles of Database Management Systems 3 units  
- CSIS-241A Database Server Administration – Level 1 3 units  
- CSIS-261A Database Server Administration – Level 2 3 units

**Database Developer (12 units)**

- CSIS-124A SQL Programming – Level 2 3 units  
- CSIS-124C Database Programming – Level 2 3 units  
- CSIS-134A SQL Programming - Level 3 3 units  
- CSIS-214 Principles of Database Management Systems 3 units

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