BEFORE ENROLLING IN DEGREE APPLICABLE COURSES, IT IS RECOMMENDED THAT YOU COMPLETE ENGL 001A AND READ 053.

041 • FAMILY ISSUES **3.0 units**

Total Lecture 54.4 hours
Acceptable for credit: University of California, California State University

This course is a sociological analysis of how families function in society today. Topics include preparing children to function in society, family roles, family conflict patterns, family stress, and multigenerational cultural patterns. Traditional and recent family structures will be discussed, including extended families, nuclear families, single-parent families, gay/lesbian families, and step-families. Family communication patterns and functional and dysfunctional results will be emphasized. *This course may also be offered via distance learning. Pass/No Pass Option.*

043 • SOCIOLOGY OF RELIGION **3.0 units**

Total Lecture 54.4 hours
Acceptable for credit: University of California, California State University

An exploration of the interplay of religion and other spheres of social life; an analysis of the character of religious authority and leadership; the nature of religious movements in our social system, the effects of secularization on religion; the influence on the values, beliefs and practices of group-oriented and personal religion. *This course may also be offered by via distance learning. Pass/No Pass Option.*

045 • HUMAN SEXUALITY **3.0 units**

Total Lecture 54.4 hours
Acceptable for credit: University of California, California State University

This course is an up-to-date and comprehensive introduction to the topic of human sexuality, including information and perspectives from sociology, health science, psychology, and anthropology. Topics include sexual anatomy and physiology, sexual expression, sexual orientation, sexually transmitted diseases, safe sexual practices, and sexual problems. The emphasis of this course is the history, attitudes, medical aspects, and current practices of sexuality in the United States, including a special emphasis on urban and suburban areas of California. *This course may also be offered via distance learning. Pass/No Pass Option.*

046 • ADVANCED HUMAN SEXUALITY: CURRENT ISSUES AND GLOBAL PERSPECTIVES **3.0 units**

Total Lecture 54.4 hours
Advisory: SOC 045 and SOC 001
Acceptable for credit: University of California, California State University

This is a human sexuality course, dealing with current issues in the United States and with practices in various cultures throughout the world. Topics include marriage customs, rites of passage into adulthood, beauty-enhancement practices, sexual behaviors, sexual orientations, and sexually deviant behaviors, as defined by law and customs. *This course may also be offered via distance learning. Pass/No Pass Option.*

047 • SOCIOLOGY OF CRIMINOLOGY **3.0 units**

Total Lecture 54.4 hours
Advisory: SOC 001
Acceptable for credit: University of California, California State University

This course is a sociological analysis of crime and criminal behavior in the United States, including the major theories regarding the causes of criminal behaviors, the effects of crime on victims, criminals and the general society, and the responses of societal agencies to criminal behavior. The roles of law enforcement, the justice system, and the correctional systems in prevention, prosecution, and rehabilitation will be discussed. Emphasis will be placed on the history of criminology in the United States, including changes in the social theories of deviance, and changes in the attitudes of the society toward criminal behavior. The role of social institutions and social service organizations will be investigated. Opportunities to visit correctional facilities, trials, police informational meetings, or rehabilitation centers will be offered. *This course may also be offered via distance learning. Pass/No Pass Option.*

TECHNOLOGY STUDIES

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INDUSTRIAL TECHNOLOGY (TECH)

The Industrial Technology (TECH) Program is a new university transfer program at Mission College, and was developed in collaboration with San Jose State University (SJSU). The program is primarily designed for those who wish to transfer to San Jose State University to obtain the Bachelor of Science degree in Industrial Technology (BSIT).

The lower division (first two years) of the BSIT program will be taken at Mission College, where the student can receive an A.S. Degree or a Certificate. Those who wish to continue on will transfer to SJSU to complete the upper division courses and receive the BSIT degree. To make the transfer seamless and automatic, all TECH courses at Mission are fully articulated with identical lower division classes at SJSU, having identical name, number, and approved course outline.

The true value of the program is that it prepares a student for the widest possible variety of technology jobs. Whether interests lean towards technical, management, sales or nearly any other aspect of the technology industry, the IT degree gives you the necessary background and preparation. Included are a sound knowledge and understanding of materials, quality control and production processes; principles of distribution and concepts of industrial management and human relations; experiences in communication skills, humanities, and social sciences; and a proficiency level in the physical sciences, mathematics, design, and technical skills to permit the graduate to resolve technical - managerial, and manufacturing production problems.

According to the Silicon Valley Leadership Group (www.svlg.org) work is plentiful and highly qualified workers are scarce. The majority of BSIT graduates receive a job offer upon graduation in a career directly related to their major program.

Of special interest to the ASIT and BSIT graduates is the rapidly growing interest in Green and Sustainable Technologies—which are transforming American industries and businesses. Because clean, reliable energy is the lifeblood of our modern society, industry and government throughout Silicon Valley are making major investments in this vital area. The student will find Green and Sustainable Technologies incorporated into the new IT curricula.

The IT program offers two major areas of concentration:

- Computer Networking Technology and
- Manufacturing Systems.

Classes are supported by hands-on laboratory experiments, at the SJSU instructional level.

THE CONCENTRATION IN COMPUTER NETWORKING TECHNOLOGY prepares the student for a career in the computer, networking, or electronics fields. Students will gain knowledge, skills, and practical experience in analog and digital systems, telecommunications and networking, control of electronics industrial processes, network management and administration, instrumentation and automation, electronics manufacturing, and microprocessor-based systems design.

Student Learning Outcomes:

Graduates of the A.S. Degree/Certificate in Computer Networking Technology will be able to: (Those who go on to receive the BSIT degree will be proficient in wider areas.)

- Solve, analyze, and integrate a variety of analog and digital circuits and systems.
- Apply telecommunication theory and management.
- Analyze, test, configure, and integrate a wide variety of network components and systems - including wireless systems.
- Use computer-aided design in the study of circuits and systems.
- Manage and administer networks using network operating systems.
- Demonstrate knowledge of current programming languages.

BEFORE ENROLLING IN DEGREE APPLICABLE COURSES, IT IS RECOMMENDED THAT YOU COMPLETE ENGL 001A AND READ 053.

THE CONCENTRATION IN MANUFACTURING SYSTEMS prepares the student for a career in manufacturing design and management. Graduates will gain knowledge, skills, and practical experience in innovative manufacturing processes, quality control and management, computer integrated manufacturing, robotics and control systems, and computer-aided manufacturing.

Student Learning Outcomes:

Graduates of the A.S. Degree/Certificate in Manufacturing Systems will be able to: (Those who go on to receive the BSIT degree will be proficient in wider areas.)

- Demonstrate skills in production design layout utilizing CAD solid modeling.
- Demonstrate skills in the planning, control and design of manufacturing processes.
- Describe the product life cycle and how products are manufactured.
- Identify the principles of manufactured products using polymers, composite materials, ceramics and metals.
- Apply CIM and CAD/CAM interface to industrial problems and settings.
- Integrate a design process as related to manufacturing, materials and industry standards for the design and development of new products
- Apply computerized design layout techniques for construction planning and maintenance of facilities and equipment.
- Integrate regulatory and environmental technology studies (Green Technology) into a systematic design approach.
- Recognize quality control concepts as related to the manufacturing of products.

Students will be assessed through a multitude of methods, including written quizzes, and hands-on individual and group laboratory experiments and projects.

Highlights

- State-of-the-art theory and laboratory instruction
- All courses fully articulated with San Jose State University
- Course material and instruction that is closely matched with the needs of industry
- Wide scope of course offerings to match a variety of career options in technology

A.S. Degree / Certificate

IT (Computer Networking Technology, Manufacturing Systems)

Only courses completed with a grade of C or better may be used to satisfy requirement for Certificate, A.S. Degree or transfer to SJSU.

Career Options

- Network Technician
- Assistant Network Administrator
- Electronics/Computer Technician
- Customer Service Support
- Network Help Desk
- Technology Process Technician
- Network Installation Support
- Monitor Manufacturing Operations
- Robotic Systems Technician
- Computer Systems Analysts
- Network Systems and Data Communications Analysts
- Network and Computer Systems Administrator
- Supervisors of Production Workers
- Manufacturing Engineer

Schedule Matrix (subject to change):

COURSE	FALL	SPRING	SUMMER	WEEKEND
TECH 031	E	E		
TECH 060	E	E		
TECH 020		E		
TECH 025	E			
TECH 040		E		
TECH 045	E			
TECH 051		E		
TECH 062	E			
TECH 063		E		
TECH 064	E			
TECH 065		E		
TECH 066		E		

E= EVENING CLASSES

Industrial Technology - A.S. Degree

This program is qualified as the lower division course requirements for San Jose State University Bachelor of Industrial Technology.

Industrial Technology is a program of courses designed to prepare students for certificates and degrees to become technicians and/or technical management professionals for employment in business, industry, education, and government.

Industrial Technology professionals typically are involved with:

a. Application of theories, concepts, and principles found in the humanities and the social and behavioral sciences, including a thorough grounding in communication skills.

b. Understanding of the theories and the ability to apply the principles and concepts of mathematics and science.

c. Understanding and application of computer hardware, systems and software fundamentals.

d. Application of concepts derived from, and current skills developed in, a variety of technical and related disciplines which may include, but are not limited to, materials and production processes, manufacturing systems, industrial management and human relations, marketing, human and electronic communications, electronics, documentation and graphics communication.

e. A field of technical specialization, for example, manufacturing systems, computer network technology, electronic data processing, computer-aided design, computer integrated manufacturing, construction, energy, polymers, printing, safety, or transportation.

Core Curriculum Courses + Area of Concentration **Units**

(Required for A.S., Certificate, and B.S.)

TECH 031 ..... Quality Assurance and Control 3.0
TECH 060 ..... Basic Electronics 4.0

Students would select one of the two areas of concentration

Manufacturing Systems Concentration **Units**

(Required for A.S., Certificate, and B.S.)

TECH 020 ..... Design and Graphics 3.0
TECH 025 ..... Introduction to Materials Technology 3.0
TECH 040 ..... Product Design I 3.0
TECH 045 ..... Facilities Design and Development 3.0

Computer Networking Concentration **Units**

(Required for A.S., Certificate, and B.S.)

TECH 062 ..... Analog Circuits 4.0
TECH 063 ..... Digital Circuits 4.0
TECH 064 ..... Basic Wireless LAN 3.0
TECH 065 ..... Networking Theory and Application 3.0
TECH 066 ..... Network Operating Systems and Administration 3.0
Total Units .....19.0 - 24.0

IT Preparation Courses – 27 units

(All are required for B.S. degree; selected courses satisfy some A.S. requirements.)

(Additional GE courses will be required for AS degree and transfer to SJSU)

CNET 083.....Introduction to C# Language programming. 4.0
CHEM 1A.....General Chemistry..... .....5.0
ECON 001B.... Principles of Microeconomics..... .....3.0
MATH 003A.....Analytic Geometry and Calculus..... .....5.0
PHYS 002A.....General Physics..... .....5.0
PHYS 002B.....General Physics..... .....5.0

BEFORE ENROLLING IN DEGREE APPLICABLE COURSES, IT IS RECOMMENDED THAT YOU COMPLETE ENGL 001A AND READ 053.

INDUSTRIAL TECHNOLOGY (TECH)

020 • DESIGN AND GRAPHICS **3.0 units**

Total Lecture 36.8 hours, Total Lab 54.4 hours
Advisory: MATH 903, ENGR 010
Acceptable for credit: California State University

This course is an introduction to the design and graphical communication tools used by engineers in the industry with an emphasis on mechanical production design layout. Lectures include graphical solutions to three-dimensional design problems involving points, lines, surfaces, and the development of visualization utilizing technical sketching skills in conjunction with orthographic and pictorial projections. A formal study of tolerance analysis for fabrication purposes involving individual design projects with an emphasis on computer-aided design and graphical analytical methods is discussed. The course also includes a discussion of career choices, basic computer-aided drafting, and parametric solid modeling. *This course may be repeated one time. Pass/No Pass Option.*

025 • INTRODUCTION TO MATERIALS TECHNOLOGY **3.0 units**

Total Lecture 36.8 hours, Total Lab 54.4 hours
Prerequisite: CHEM 001A, PHYS 002A
Acceptable for credit: California State University

Materials Technology is an introductory study designed to familiarize the student with four major materials groups – metals, polymers, ceramics, and composites. The course investigates the nature of materials, as well as mechanical and physical properties of materials. Additionally, the students explore other factors affecting the performance of materials in manufactured products. *Grade Only.*

031 • QUALITY ASSURANCE AND CONTROL **3.0 units**

Total Lecture 36.8 hours, Total Lab 54.4 hours
Advisory: MATH 000C
Acceptable for credit: California State University

Students in this course develop an understanding of quality control concepts. Sampling, inspection, process control, and quality responsibility topics are included in the course. The course emphasizes the role played by the computer in analyzing data and developing quality related documents. *Pass/No Pass Option.*

040 • PRODUCT DESIGN I **3.0 units**

Total Lecture 36.8 hours, Total Lab 54.4 hours
Advisory: DRAFT 055A, MATH 903
Acceptable for credit: California State University

This course is an introduction to the product design process. Students become familiar with manufacturing processes and industry standards in the design and development of a product. Students use a popular computer-aided drafting and parametric solid modeling software. The laboratory design projects are intended to familiarize students with the design process and designing for manufacturing. The course and projects are based on design for products that are made from metals. *This course my be repeated one time. Pass/No Pass Option.*

045 • FACILITIES DESIGN AND DEVELOPMENT **3.0 units**

Total Lecture 36.8 hours, Total Lab 54.4 hours
Advisory: Eligibility for ENGL 108A and READ 053, MATH 903, ENGR 010
Acceptable for credit: California State University

This course teaches a systematic approach to design principles for the construction, planning, and maintenance of physical facilities and equipment based on plant design layout requirements. Topics in facilities include regulatory and environmental technologies (green technology), safety procedures, security issues, energy conservation, process improvement, and production line planning to maximize facility efficiency as related to OSHA. The application of computerized layout techniques is emphasized. *This course my be repeated one time. Pass/No Pass Option.*

060 • BASIC ELECTRONICS **4.0 units**

Total Lecture 54.4 hours, Total Lab 54.4 hours
Advisory: MATH 903
Acceptable for credit: California State University

This is a comprehensive introductory course in basic electronics. Major topics include: DC and AC theory, Ohm's law, Kirchhoff's laws, power laws, series and parallel circuits, network theorems, schematic diagrams, instrumentation and measurement, and functions of discrete components. *Pass/No Pass Option.*

062 • ANALOG CIRCUITS **4.0 units**

Total Lecture 54.4 hours, Total Lab 54.4 hours
Advisory: MATH 903
Acceptable for credit: California State University

This course covers semiconductor theory, p-n junction, bipolar transistors, JFET's, MOSFET's, optoelectronic devices, operational amplifiers and 555 timers. Device applications include such items as comparators, signal generators, active filters, instrumentation amplifiers, voltage regulators, and power supplies. *Pass/No Pass Option.*

063 • DIGITAL CIRCUITS **4.0 units**

Total Lecture 54.4 hours, Total Lab 54.4 hours
Advisory: MATH 903
Acceptable for credit: California State University

This course covers logic gates emphasizing TTL and CMOS design techniques, combinational circuits, counters, registers, multiplexers, demultiplexers, encoders, decoders, DAC, ADC, and ALU. *Pass/No Pass Option.*

064 • BASIC WIRELESS LAN **3.0 units**

Total Lecture 44.8 hours, Total Lab 27.2 hours
Acceptable for credit: California State University

This course is designed to introduce students to the fundamentals of wireless LAN technology. The course covers the basics of RF technology, cellular radio, cellular system architecture, wireless network protocols, WLAN technology, broadband wireless and emerging wireless technologies. Topics include RF transmission theories, wireless communication, GSM, TDMA, CDMA, Bluetooth, and 802.11a /b/g/n protocols. *Pass/No Pass Option.*

065 • NETWORKING THEORY AND APPLICATION **3.0 units**

Total Lecture 44.8 hours, Total Lab 27.2 hours
Acceptable for credit: California State University

This is a comprehensive introductory course in networks and networking concepts with an emphasis on Local Area Network (LAN) technology. The course covers all major aspects of networking technology such as Network architecture, Network hardware, and Network operating systems. The course also includes different topologies, transmission media, access methods, interface techniques, control and administration topics, and discuss major network standards and protocols. Students also learn different architectures, and hardware/software architectural compatibility. Additionally, this course will include LAN operating systems, gateways/servers, network control and management, and implementation consideration/product review. (Also listed as CIS-081). *Pass/No Pass Option.*

066 • NETWORK OPERATING SYSTEMS AND ADMINISTRATION **3.0 units**

Total Lecture 44.8 hours, Total Lab 27.2 hours
Acceptable for credit: California State University

This introductory course is designed to give an overview of the major network operating systems, and the basics of system administration to students in the networking technology area. The course covers the basic network features, and system administration aspects of Microsoft Windows, Novell Netware and Linux/UNIX. Students also learn the security features, the file system and the network administration of each of the network operating systems. *Pass/No Pass Option.*

BEFORE ENROLLING IN DEGREE APPLICABLE COURSES, IT IS RECOMMENDED THAT YOU COMPLETE ENGL 001A AND READ 053.

Industrial Technology Recommended Progression

All *Preparation* courses (those above the dotted line) must eventually be taken by ALL BSIT graduates. This chart gives the suggested *advisory* order at Mission, and the required *prerequisite* order at SJSU.