

# STANISLAUS INDUSTRIAL TECHNOLOGY INSTITUTE

## SUPPLY CHAIN TECHNICIAN 1

CBEDS Code: 5687

<u>JOB TITLES</u>	<u>DOT NO.</u>
Maintenance Mechanic	630.261-010
Lead Operator	630.381-018
Pneumatic Tool Repairer	630.281-010
Service Mechanic	630.664-018
Electrician	824.681-010
Electrician Apprentice	824.261-014
Maintenance Repair Helper	899.684-022

### **Course description:**

This course is designed to prepare students with fundamental skills, attitudes, & desires in working in the supply chain technician field. The course will provide information on several different mechanical systems students may encounter in the supply chain technician industry. The goal is to develop a sense of workmanship and pride and create a climate of student responsibility towards a job.

### *Recommended Prerequisites:*

DURATION: Semesters/ 360 hours

CREDIT: Units

MEETS GRADUATION REQUIREMENTS IN:

REQUIRED FOR GRADUATION: No

SCHOOLS OFFERED:

MEETS UNIVERSITY OF CALIFORNIA ENTRANCE REQUIREMENTS: No

MEETS CALIFORNIA STATE UNIVERSITY REQUIREMENTS: No

**Instructional Content**

Instruction will include:

ARTICULATED WITH POSTSECONDARY INSTITUTIONS: No

**Student Outcomes**

At the end of instruction, the student will be able to:

**Hours**

CL=Classroom  
CC=Comm. Class

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<p><b>1. Safety</b></p> <ul style="list-style-type: none"> <li>a. Basic Safety Practices                             <ul style="list-style-type: none"> <li>i. Tool Safety</li> <li>ii. Electrical Safety</li> <li>iii. Personal Protective Equipment</li> <li>iv. Ladder Safety</li> <li>v. Forklift Safe Operation</li> </ul> </li> <li>b. Safety Data Sheets (SDS)                             <ul style="list-style-type: none"> <li>i. Application and Use</li> </ul> </li> <li>c. OSHA                             <ul style="list-style-type: none"> <li>i. OSHA Purpose</li> <li>ii. Workers' Rights</li> <li>iii. Filing a OSHA Complaint</li> <li>iv. OSHA History</li> </ul> </li> </ul>	<p><b>Goal: The student will understand basic safety practices and the role of safety in an industrial environment.</b></p> <ul style="list-style-type: none"> <li>A. Demonstrate proper tool safety and handling techniques</li> <li>B. Perform proper electrical safety practices.</li> <li>C. Describe the proper use of ladders and elevated surfaces</li> <li>D. Demonstrate the use of a SDS given an example</li> <li>E. Describe the purpose of OSHA and demonstrate the proper procedures for filling a complaint</li> </ul>	<p><b>CTE</b></p>	<p><b>Anchor</b></p> <p>C1.0 C1.2 B1.0 B1.6 C1.4</p>	<p><b>CL</b></p> <p>20-25</p>	<p><b>CC</b></p> <p>N/A</p>
<p><b>2. Career Opportunities/Leadership/ Gender Equity</b></p> <ul style="list-style-type: none"> <li>a. Review desirable traits.</li> <li>b. Review skills needed for employment in field.</li> <li>c. Review possible careers in field.</li> <li>d. Review opportunities offered through Skills USA.</li> <li>e. Demonstrate that opportunities in field are available without regard to race, sex, national origin or handicap.</li> <li>f. Correct way to complete an online job application.</li> <li>g. Resume' development.</li> <li>h. Employment outlook within the Supply Chain/transportation field.</li> <li>i. Visit a local Distribution Plant and observe employees at work.</li> <li>j. Explore areas or levels of education in which opportunities are available in Supply Chain Technology.</li> <li>k. Review the role of a Supply Chain Technician in industry.</li> <li>l. Demonstrate written and oral communication skills.</li> </ul>	<p><b>Goal: The student will be able to demonstrate competency in lifelong career planning skills, develop leadership abilities, and develop an awareness of programs offered in higher education without regard to race, sex, national origin, or handicap as they relate to Supply Chain Technology.</b></p> <ul style="list-style-type: none"> <li>A. Using reading materials, visual media, attendance at trade meetings, or by visiting Supply Chain Technology facilities. Complete a report about choosing a career within the field of Supply Chain Technology.</li> <li>B. Develop leadership abilities in educational, vocational, civic, recreational; and social activities through involvement in student organizations such as Job Skills USA.</li> <li>C. Identify personal traits (strengths, values and weaknesses).</li> <li>D. Listen to guest speaker on trade and technical education after high school.</li> <li>E. Identify at least three possible career choices in the Supply Chain Technology field.</li> <li>F. Perform the responsibilities of supervisor in charge of clean up assignments on a rotating basis.</li> <li>G. Perform as a lead person to assist students with less experience.</li> <li>H. Demonstrate that opportunities in the Supply Chain Technology field are available without regard to race, sex, national origin or handicap.</li> </ul>	<p><b>Trans</b></p> <p>1.0 2.0-2.6 3.0-39 11.0</p> <p>CR 1-12</p>	<p><b>A1.0</b> <b>A1.5</b></p>		

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2. <b>Career Opportunities/Leadership/ Gender Equity (cont'd)</b>	I. Demonstrate an understanding of the role of a Supply Chain Technician. J. Develop a resume and complete a job application. K. Correctly fill out and use order forms. L. Write a career report on opportunities in the Supply Chain Technology field by reading materials or listening to speakers from trade schools or visiting facilities.	<b>CTE</b>	<b>Anchor</b>	<b>CL</b>	<b>CC</b>
<b>3. Attitudes, behaviors and personal characteristics valued by employers.</b> a. Positive attitudes and work ethics b. Interpersonal skills c. Ability to work in a team. d. Personal traits that impact work performance.	<b>Goal: The student will demonstrate attitudes, behaviors, and personal characteristics valued by employers.</b> A. Responsibility B. Dependability C. Promptness D. Willingness to learn new skills E. Attentiveness during instruction F. Getting along with others G. Respect for others H. Honest and integrity I. Pride in work J. Flexibility K. Not being defensive when corrected L. Working up to capacity M. Being pleasant and cheerful N. Showing strong motivation to succeed O. Good personal appearance P. Organized Q. Constructively assisting others	A1.0- A1.6	9.1 9.3 9.6 1.0  CR 1-12		
<b>4. Residential Wiring</b> a. Introduction to Electrical Wiring i. Electrical Terms ii. Electrical Safety iii. Wire Stripping Techniques iv. Wire Termination Techniques v. Power Cord Installation	<b>Goal: The student will understand safe electrical practices, proper wire stripping, termination and power cord installation techniques</b> A. Identify two different types of electricity and their basic components and recognized industrial markings. B. Demonstrate proper electrical safety rules. C. Perform wire stripping, crimping, terminating and power cord installation techniques on multiple different insulated wire types. D. Identify common electrical tools to include: Lineman Pliers, Electrician's Knife and a Stripper/Crimper Tool.	1,2,3,5,12	C2.0 C2.3 C7.0 C7.1 B8.0 B8.3	20-25	N/A

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<p><b>5. Pneumatics 1</b></p> <p>a. <i>Pneumatic Power Systems</i></p> <p>i. <i>Introduction to Pneumatics</i></p> <p>ii. <i>Pneumatic Power</i></p> <p>iii. <i>Circuit Connections</i></p> <p>iv. <i>Basic Cylinder Circuits</i></p> <p>b. <i>Basic Pneumatic Circuits</i></p> <p>i. <i>Single-Acting Cylinders Circuits</i></p> <p>ii. <i>Basic Motor Circuits</i></p> <p>iii. <i>Pneumatic Schematics</i></p>	<p><b>Goal: The student will understand safe pneumatic practices, function and operations of pressure regulator valves, filters, schematic symbols, and basic cylinders within a pneumatic circuit.</b></p> <p>A. Identify and read pneumatic gages and perform adjustments on pressure regulator valves.</p> <p>B. Give the pneumatic schematic symbol for filters, pressure regulator valves, and pneumatic cylinders.</p> <p>C. Describe the function of a single and double-acting cylinder and perform basic operations.</p> <p>D. Design multiple cylinders and multiple actuator pneumatic circuits.</p>	<p><b>CTE</b></p> <p>1,2,3,5,10,12</p>	<p><b>Anchor</b></p> <p>B2.0 B2.2 B2.1</p>	<p>20-25</p>	<p>N/A</p>
<p><b>6. Measurement Tools 1</b></p> <p>a. <i>Basic Measurement</i></p> <p>i. <i>SI Measurement</i></p> <p>ii. <i>U.S Customary Measurement</i></p> <p>iii. <i>Tape Measure</i></p> <p>iv. <i>Measurement Conversion</i></p>	<p><b>Goal: The student will understand the two types of systems of dimensional measurement and measurement conversions.</b></p> <p>A. Use a machinist rule in SI Measurement and U.S. Customary Measurement</p> <p>B. Describe the function and construction of a tape measure and use a tape measure to measure a length</p> <p>C. Convert between U.S Customary units and SI Metric Units</p> <p>D. Convert between fractions and decimals</p>	<p>1,2,4,5,10,11</p>	<p>C2.0 C2.1 C2.2 C2.3 C2.4 C2.5</p>	<p>25-30</p>	
<p><b>7. Hydraulics 1</b></p> <p>a. <i>Hydraulic Power Systems</i></p> <p>i. <i>Introduction to Hydraulics</i></p> <p>ii. <i>Power Unit Operation</i></p> <p>iii. <i>Circuit Connections</i></p> <p>iv. <i>Basic Cylinder Circuits</i></p> <p>b. <i>Basic Hydraulic Circuits</i></p> <p>i. <i>Pumps</i></p> <p>ii. <i>Needle Valves</i></p> <p>iii. <i>Basic Motor Circuits</i></p> <p>iv. <i>Hydraulic Schematics</i></p>	<p><b>Goal: The student will understand safe hydraulic practices, functions and operations of hydraulic power units, pumps, needle valves and motors as well as their associated schematic symbol.</b></p> <p>A. Identify and read hydraulic gages and give its unit of measure</p> <p>B. Give the hydraulic schematic symbol and perform the basic operation for a gauge, quick-connect fitting, double-acting cylinder, fixed displacement pump, and needle valve.</p> <p>C. List types of hydraulic motors and give applications of each</p> <p>D. Design multiple actuator and hydraulic circuits given a schematic.</p>	<p>1,2,3,5,10,12</p>	<p>B2.0 B2.1 B2.2</p>	<p>20-25</p>	<p>N/A</p>

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<p><b>8. Mechanical Systems 1</b>  <i>a. Introduction Levers</i>  <i>i. Mechanisms Concepts</i>  <i>ii. Force Measurement</i>  <i>iii. First-Class Levers</i>  <i>iv. Second-and-Third-Class Levers</i></p>	<p><b>Goal: The student will have an understanding of mechanisms and give an application of three different class levers and how to calculate mass, weight, and force of an object.</b></p> <p>A. Calculate torque, force, weight, mass, moment, and mechanical advantage given an application.            B. Describe six mechanism safety rules            C. Define the Law of Moments and explain Hooke's law and its use.            D. Describe the construction and operation of a first-class, second-class, and third-class lever.</p>	<p><b>CTE</b> 1,2,3,5,10,11</p>	<p><b>Anchor</b> B3.0 B3.1</p>	<p>25-30</p>	<p>N/A</p>
<p><b>9. Mechanical Fabrication 1</b>  <i>a. Thread Fasteners</i>  <i>i. Assembly Concepts</i>  <i>ii. Bolt Types</i>  <i>iii. Bolt Sizes</i>  <i>iv. Bolt Grades</i>  <i>v. Washers</i>  <i>b. Wrenches</i>  <i>i. Installation</i>  <i>ii. Fixed Wrenches</i>  <i>iii. Adjustable Wrenches</i>  <i>iv. Allen Wrenches</i>  <i>v. Ratchet Wrenches.</i>  <i>c. Pneumatic System Fabrication</i>  <i>i. Fluid Circuit Components</i>  <i>ii. Pipe Thread Components</i>  <i>iii. Pneumatic Fittings</i>  <i>iv. Pneumatic Tubing</i>  <i>d. Screwdrivers</i>  <i>i. Screws</i>  <i>ii. Flat Head Screwdrivers</i>  <i>iii. Phillips Head Screwdrivers</i>  <i>iv. Nut Drivers</i></p>	<p><b>Goal: The student will have an understanding of bolt specifications, and the proper use of wrench and screwdriver types and pneumatic components.</b></p> <p>A. Understand the different properties of a bolt to include: type, size, and grade            B. Identify screw sizes and type given a sample.            C. Use proper techniques when using fixed, adjustable, allen, and ratchet wrenches.            D. Identify and use different types of air hoses, pneumatic pipe thread fittings, bulkhead fittings, and ferrule-type fittings.            E. Use proper techniques when using flat head screwdrivers, phillips head screwdrivers, and nut drivers.</p>	<p>1,2,5,10</p>	<p>C2.0 C2.2 B2.0 B2.1</p>	<p>40-45</p>	<p>N/A</p>
<p><b>10. Robotics 1</b>  <i>a. Basic Robot Operation</i>  <i>i. Power up and Shutdown</i>  <i>ii. Manual Operation</i>  <i>iii. Homing</i>  <i>iv. End Effector Operation</i></p>	<p><b>Goal: The student will understand proper safety procedures while performing basic manual operations of a robot.</b></p> <p>A. Perform safety procedures before operating a servo robot            B. Use control software to jog a servo robot using fast and slow speeds as well as teach pendant            C. Perform homing and gripper operations</p>	<p>1,2,4,5,9,10,11</p>	<p>ICT 3.0 3.1  ICT 2.0 2.1  ICT 9.0 9.1-9.5</p>	<p>20-25</p>	<p></p>

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Instructional Content	Student Outcomes	CTE	Anchor	Hours	Class
<b>11. Print Reading 1</b> a. Multi-view Drawings i. Introduction to Print Reading ii. Multi-view Drawings iii. Introduction to Basic Dimensioning b. Sectional Drawings and Fasteners i. Advanced Dimensioning ii. Sectional Drawings iii. Fasteners iv. Assembly Drawings	<b>Goal: The student will demonstrate an understanding of basic dimension drawings, sectional drawings, fasteners and assembly drawings.</b>  1. Interpret print drawings when shown an object 2. Identify views of a print, line types, dimensions of an object by reading a technical drawing. 3. Describe the function of line precedence, title block, drawing scale, cutting plane, and sectional view. 4. Determine a dimension of an object given a unidimensional scale drawing. 5. Identify size and type of a fastener given an example on a drawing.	1,2,5,10	B3.0 B3.2 C2.0 C2.6 C4.3 C4.0	20-25	N/A
<b>12. AC/DC Electrical Systems</b> a. Basic Electrical Circuits i. Fundamentals of Electricity ii. Electrical Circuit Components iii. Manual Input Devices iv. Output Devices b. Electrical Measurements i. Voltage Measurement ii. Introduction to series and parallel circuits iii. Current Measurement iv. Resistance Measurement	<b>Goal: The student will understand the two different types of electrical currents and components in an electrical circuit &amp; measure voltage, current, and resistance.</b>  A. Define electricity and give an application of two types of electrical current. B. Describe the function and operation of a circuit tester & Digital Multimeter. C. Describe the function of the four basic components of an electrical circuit. D. Describe different types of output devices in an electrical system and give an application of each E. Use a Digital Multimeter to measure Voltage, Resistance & Current	1,2,3,5,12	C3.0 C3.5 B2.2 B2.0 C7.0 C7.1	20-25	N/A
<b>13. Supply Chain Principles</b> a. Procurement i. Factors of Procurement b. Manufacturing and Operations c. Transportation and Logistics i. Types of Transportation d. Logistic Vocabulary	<b>Goal: The student will demonstrate an understanding of a supply chain operation and the process involved.</b>  1. Describe what a Supply Chain looks like and give an application. 2. Give examples of factors that influence a Supply chain 3. Given logistical vocabulary, describe and interpret meaning	2,3,4,5,6,7,8,9,10,11,12	A1.0 A1.2 A1.3 A3.1 A2.0	80-100	N/A

Revised 6/2017