



Western Technical College

10660106 Basic Soldering

Course Outcome Summary

Course Information

Description	This course emphasizes beginning soldering techniques for students in multiple electronics programs. The course will cover basic soldering and desoldering of wires and components.
Career Cluster	Manufacturing
Instructional Level	Associate Degree Courses
Total Credits	1
Total Hours	27

Textbooks

No textbook required.

Learner Supplies

Safety glasses with side eye protection that meet Z87 OSHA guidelines. **Vendor:** Campus Shop. Required.

Scientific calculator - T1-30XIIS or T1-36x Solar. **Vendor:** Campus Shop. Required.

Program Outcomes

1. Problem-solve electronic circuits and systems
2. Demonstrate safety precautions and practices with medical equipment
3. Demonstrate professionalism

Course Competencies

1. Describe solder and the soldering process.

Assessment Strategies

- 1.1. Written Product
- 1.2. Written Objective Test

Criteria

You will know you are successful when

- 1.1. you list the advantages of soldering.
- 1.2. you describe the wetting action of a soldered connection.
- 1.3. you explain the role of flux in soldering.
- 1.4. you explain the heat cycle of the work when soldering.
- 1.5. you describe the characteristics of a good solder connection.

Learning Objectives

- 1.a. List the advantages of soldering.
- 1.b. Describe the wetting action of a soldered connection.
- 1.c. Explain the role of flux in soldering.
- 1.d. Explain the heat cycle of the work when soldering.
- 1.e. Describe the characteristics of a good solder connection.

2. Investigate proper tools and materials for soldering and desoldering a connection.

Assessment Strategies

- 2.1. Written Objective Test
- 2.2. Written Product

Criteria

You will know you are successful when

- 2.1. you list the parts of a soldering iron.
- 2.2. you identify characteristics of commercially available solders which are essential for making different types of electrical connections.
- 2.3. you compare the characteristics of mechanical and thermal strippers.
- 2.4. you select the proper tools for desoldering a connection.
- 2.5. you select the proper materials for desoldering a connection.
- 2.6. you list the materials required for soldering four types of electrical terminals.

Learning Objectives

- 2.a. List the parts of a soldering iron.
- 2.b. Identify characteristics of commercially available solders which are essential for making different types of electrical connections.
- 2.c. Compare the characteristics of mechanical and thermal strippers.
- 2.d. Select the proper tools for desoldering a connection.
- 2.e. Select the proper materials for desoldering a connection.
- 2.f. List the materials required for soldering four types of electrical terminals.

3. Prepare the materials for soldering and desoldering a connection.

Assessment Strategies

- 3.1. Skill Demonstration
- 3.2. Written Product

Criteria

You will know you are successful when

- 3.1. you remove insulation from wire conductor.
- 3.2. you set up a soldering workstation.
- 3.3. you tin wire conductor.
- 3.4. you clean connections prior to soldering.
- 3.5. you stabilize the parts of the connection.

3.6. you apply the appropriate technique for soldering static sensitive components.

Learning Objectives

- 3.a. Remove insulation from wire conductor.
- 3.b. Set up a soldering workstation.
- 3.c. Tin wire conductor.
- 3.d. Clean connections prior to soldering.
- 3.e. Wire the parts of the connection.
- 3.f. Apply the appropriate technique for soldering static sensitive components.

4. Solder industry standard electronic components and connectors.

Assessment Strategies

- 4.1. Skill Demonstration
- 4.2. Written Product

Criteria

You will know you are successful when

- 4.1. you solder static sensitive components.
- 4.2. you solder wire conductors to turret, cup, bifurcated and pierced terminals.
- 4.3. you solder axial and radial lead components to PC board.
- 4.4. you solder transistors and IC's to PC board.

Learning Objectives

- 4.a. Solder static sensitive components.
- 4.b. Solder wire conductors to turret, cup, bifurcated and pierced terminals.
- 4.c. Solder axial and radial lead components to PC board.
- 4.d. Solder transistors and IC's to PC board.

5. Desolder industry standard electronic components and connectors.

Assessment Strategies

- 5.1. Skills Demonstration
- 5.2. Written Product

Criteria

You will know you are successful when

- 5.1. you desolder static sensitive components.
- 5.2. you desolder axial and radial lead components to PC board.
- 5.3. you desolder transistors and IC's to PC board.

Learning Objectives

- 5.a. Desolder static sensitive components.
- 5.b. Desolder axial and radial lead components to PC board.
- 5.c. Desolder transistors and IC's to PC board.

6. Solder conductors and cables.

Assessment Strategies

- 6.1. Skill Demonstration
- 6.2. Written Objective Test

Criteria

You will know you are successful when

- 6.1. you construct cables, cable splicing, and cable ends.
- 6.2. you solder cables, cable splicing, and cable ends.
- 6.3. you complete cables, cable splicing, and cable ends.
- 6.4. you verify operation of completed cables and/or conductors.

Learning Objectives

- 6.a. Construct cables, cable splicing, and cable ends.
- 6.b. Solder cables, cable splicing, and cable ends.
- 6.c. Complete cables, cable splicing, and cable ends.

- 6.d. Verify operation of completed cables and/or conductors.
- 6.e. Fix problems identified.

7. Evaluate solder connections.

Assessment Strategies

- 7.1. Written Product
- 7.2. Skill Demonstration
- 7.3. Written Objective Test

Criteria

You will know you are successful when

- 7.1. you explain useful criteria for evaluating solder connections.
- 7.2. you identify the desirable and undesirable characteristics of a good connection.
- 7.3. you evaluate cup terminal wire connections.
- 7.4. you evaluate bifurcated terminal wire connections.
- 7.5. you evaluate pierced and hook terminal wire connections.
- 7.6. you evaluate axial and radial lead PCB connections.

Learning Objectives

- 7.a. Explain useful criteria for evaluating solder connections.
- 7.b. Identify the desirable and undesirable characteristics of a good connection.
- 7.c. Evaluate cup terminal wire connections.
- 7.d. Evaluate bifurcated terminal wire connections.
- 7.e. Evaluate pierced and hook terminal wire connections.
- 7.f. Evaluate axial and radial lead PCB connections.