



CERTIFICATE OF ACHIEVEMENT IN INDUSTRIAL PIPING

In Workflow

1. IT Chair (brianu@cos.edu)
2. IT Dean (jonnas@cos.edu)
3. Curriculum Coordinator Technical Review (sarahha@cos.edu)
4. Articulation Officer (mainouh@cos.edu)
5. Academic Resources Specialist (danielal@cos.edu)
6. IT Representative (travisa@cos.edu)
7. Financial Aid Rep (amandac@cos.edu)
8. LIBR Representative (emilyc@cos.edu)
9. Curriculum Coordinator Regen (sarahha@cos.edu)
10. Christopher Huff (christopherhu@cos.edu)
11. Vice President of Academic Affairs (jessew@cos.edu)
12. Curriculum Coordinator CC Vote Prep (sarahha@cos.edu)
13. Academic Resources Specialist (danielal@cos.edu)
14. Curriculum Committee Action Item (danielal@cos.edu)
15. Academic Senate President (juana@cos.edu)
16. Board of Trustees (danielal@cos.edu)
17. Chancellor's Office (danielal@cos.edu)

Approval Path

1. Mon, 05 Jan 2026 18:03:51 GMT
Brian Unruh (brianu): Approved for IT Chair
2. Mon, 05 Jan 2026 20:56:32 GMT
Jonna Schengel (jonnas): Approved for IT Dean
3. Mon, 26 Jan 2026 18:54:47 GMT
Sarah Harris (sarahha): Approved for Curriculum Coordinator Technical Review
4. Mon, 26 Jan 2026 20:23:22 GMT
Mainou Her (mainouh): Approved for Articulation Officer
5. Wed, 28 Jan 2026 21:32:19 GMT
Daniel Alvarado (danielal): Approved for Academic Resources Specialist
6. Thu, 29 Jan 2026 19:19:46 GMT
Travis Asher (travisa): Approved for IT Representative
7. Mon, 09 Feb 2026 23:19:45 GMT
Amanda Cota (amandac): Approved for Financial Aid Rep
8. Mon, 09 Feb 2026 23:24:48 GMT
Emily Campbell (emilyc): Approved for LIBR Representative
9. Mon, 09 Feb 2026 23:29:14 GMT
Sarah Harris (sarahha): Approved for Curriculum Coordinator Regen
10. Mon, 09 Feb 2026 23:30:03 GMT
Christopher Huff (christopherhu): Approved for christopherhu
11. Mon, 23 Mar 2026 15:50:27 GMT
Jesse Wilcoxson (jessew): Approved for Vice President of Academic Affairs
12. Tue, 24 Mar 2026 22:46:19 GMT
Sarah Harris (sarahha): Approved for Curriculum Coordinator CC Vote Prep
13. Thu, 26 Mar 2026 15:42:49 GMT
Daniel Alvarado (danielal): Approved for Academic Resources Specialist

New Program Proposal

Date Submitted: Mon, 05 Jan 2026 17:45:42 GMT

Viewing: Certificate of Achievement in Industrial Piping

Last edit: Thu, 26 Mar 2026 15:42:43 GMT

Changes proposed by: christopherhu

**Proposer and Co-Contributor(s):****Proposer:**

Name:	Email:
Christopher Huff	christopherhu@cos.edu

General**Credit Status:**

Credit

Program Award:

Certificate of Achievement (8-15.5 units)

Effective Term:

Fall 2027

Department:

Welding

Program Title

Certificate of Achievement in Industrial Piping

Program Goal:

CTE

Secondary Program Goal

Local

Distance Ed Program:

No

Catalog Description:

This certificate program equips students with foundational skills in welding and fabricating industrial piping systems, focusing on practical applications in pipe fitting, system design, and maintenance. Through hands-on training in Shielded Metal Arc Welding (SMAW) and Gas Tungsten Arc Welding (GTAW), along with specialized instruction in industrial piping, graduates will be prepared to weld carbon steel, stainless steel, and other materials commonly used in compressed air, steam, gas, sanitary, and water supply systems. The program emphasizes entry-level competencies in isometric drawing, pipe joining techniques (welded, mechanical, screwed, and brazed), and adherence to industry codes and standards.

Career and Transfer Opportunities:**Career Opportunities**

Graduates are qualified for entry-level positions such as pipe welder, pipe fitter, process piping welder/fitter, or welding technician in the Central Valley region of California. Opportunities are abundant in industries like agriculture (e.g., irrigation and dairy systems), food processing, oil and gas, manufacturing, and construction. Common employers include local fabrication shops, refineries, and agricultural equipment firms in surrounding cities

Program Outcomes**Program Outcomes:****Program Outcomes**

- Weld carbon steel pipe using Shielded Metal Arc Welding (SMAW), Gas Tungsten Arc Welding (GTAW), and Gas Metal Arc Welding (GMAW) processes to meet entry-level industry standards.
- Perform basic pipe fitting tasks, including fabrication and alignment of welded piping systems according to specific code requirements.
- Draw isometric diagrams and interpret Piping and Instrumentation Diagrams (P&ID) for basic piping system design.
- Select and justify the use of appropriate piping materials, such as carbon steel, stainless steel, or copper tubing, for applications in systems like compressed air, low-pressure steam, natural gas, sanitary, or water supply.



- Apply various pipe joining methods, including welded, mechanical, screwed, and brazed joints, while demonstrating entry-level competency.
- Explain the basic theory and maintenance principles of industrial piping systems, including fitting techniques and code compliance.

Program Requirements:

Requirements

Program Requirements

Code	Title	Units
REQUIRED CERTIFICATE COURSES		
WELD 162	Shielded Metal Arc Welding	4
WELD 172	Gas Tungsten Arc Welding	4
WELD 276 or AGTC 210	Metal Fabrication Agriculture Project Construction	3
WELD 277	Industrial Piping Systems	4
=		
TOTAL		15

The Certificate of Achievement requirements include completion of the certificate courses with a "C" or better grade in each course. Required and support courses may be substituted with the approval of the Industry & Technology Division Chair.

Units for Degree Major or Area of Emphasis (Min):

15

Units for Degree Major or Area of Emphasis (Max):

15

Total Units for Degree (Min):

15

Total Units for Degree (Max):

15

State Requirements:

TOP Code:

095650 - * Welding Technology

Enrollment and Completer Projection:

Course Number	Course Title	Required / Electives	Annual Number of Sections (Yr 1)	Annual Enrollment Total (Yr 1)	Annual Number of Sections (Yr 2)	Annual Enrollment Total (Yr 2)
WELD 162		Required	3	66	3	66
WELD 172		Required	3	66	3	66
WELD 276		Required	2	44	2	44
WELD 277		Required	2	44	2	44

Enrollment Projections:

14

Projected Annual Completers:

14

Net Annual Labor Demand (CTE only):

1264

**Faculty Workload:**

2

New Faculty Justification:

No new faculty members are required for this program.

New Equipment:

N/A

New Equipment Justification:

N/A

New/Remodeled Facilities:

N/A

New/Remodeled Facilities Justification:

N/A

Library Acquisitions:

N/A

Library Acquisitions Justification:

N/A

Place of Program in Curriculum/Similar Programs:

This certificate complements our existing program by utilizing currently adopted courses to provide students with an additional pathway to completion for those students interested in gaining employment in this industry.

Similar Programs at other colleges in Service Area:

No similar programs in our service area

Master Planning:

This Certificate of Achievement in Industrial Piping meets the growing regional demand for skilled entry-level pipe welders and fitters in the Central Valley's key industries, including agriculture, food processing, manufacturing, and construction. This program builds on existing welding courses by adding specialized training in industrial piping systems, providing students with hands-on skills in pipe welding, fitting, system design, and code compliance. The certificate prepares graduates for immediate employment in high-demand occupations while utilizing current faculty and facilities. It directly supports the college's mission to deliver relevant occupational training that addresses local workforce needs and promotes economic development.

Attachments:**LMI and/or Employer Survey**

095650_Welding Technology_June 2025).pdf
Welding LMI-2025.pdf

Local Advisory Committee Members

2025_advisory minutes_members (1).pdf

Local Advisory Committee Meeting Minutes

2025_advisory minutes (1).pdf

Database**Effective Catalog**

2027-2028

Proposal Type

Substantial

**CIP Code:**

480508 - Welding Technology/Welder.

Justification/Rationale:

This certificate will help fill a local industry need for welders skilled in industrial piping applications while offering students and additional, shortened pathway to program completion.

Reviewer Comments

Sarah Harris (sarahha) (Mon, 26 Jan 2026 18:54:18 GMT): Added net annual labor demand and attached local LMI

Amanda Cota (amandac) (Mon, 09 Feb 2026 23:19:39 GMT): Not eligible for financial aid because it is only 15 units. Programs that are eligible for financial aid need to be 16 or more units.

Sarah Harris (sarahha) (Tue, 24 Mar 2026 22:46:13 GMT): updated effective term as fall 26 deadline has passed

Key: 223