

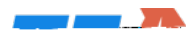
Pipefitting Technology II

- (E) identify valve actuators;
 - (F) explain how to properly store and handle valves;
 - (G) explain valve locations and positions;
 - (H) determine factors that influence valve selection; and
 - (I) interpret valve markings and nameplate information.
- (5) The student applies knowledge and skills in algebraic and geometric mathematics and measurements as they relate to the basic operations of pipefitters. The student is expected to:
- (A) demonstrate the use of measuring devices such as calculators, compasses, protractors, rulers, measuring tapes, transits and levels;
 - (B) interpret tables of weights and measurements;
 - (C) calculate mathematical piping problems such as fitting take-offs (90 degree, 45 degree and odd angles), equal spread offsets, unequal spread offsets, and rolling offsets;
 - (D) troubleshoot pipefitting problems, including problems with pressure, force, and medical advantage.
 - (E) solve mathematical problems in related pipefitting scenarios, including area, volume, circumference, and right triangles using the Pythagorean theorem.
- (6) The student describes the materials used in threaded piping systems. The student is expected to:
- (A) identify and explain the materials used in threaded piping systems;
 - (B) identify and explain pipe fittings;
 - (C) read and interpret screwed fitting joint drawings;
 - (D) identify and explain types of threads;
 - (E) determine pipe lengths between joints; and
 - (F) perform threading and assembling piping and valves; and
 - (G) perform calculations for offsets.
- (7) The student describes the materials used in socket weld piping systems. The student is expected to:
- (A) identify and explain types of socket weld piping materials;



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- (C) prepare pipe ends for fit-up;
- (D) determine pipe lengths between fittings;
- (E) select and install backing rings;
- (F) fabricate channel iron welding jigs;
- (G) demonstrate how to use and care for welding clamps; and
- (H) perform alignment procedures for various types 6 Td [(815 0 EMC /LBodes) 3(i)1342
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Recommended Resources and Materials:

Textbook

NCCER (2006). *Pipefitting Level 2 Trainee Guide* (3rd ed.). Alachua, FL:Pearson.

Curriculum Resources, Materials, Course Planning Tools; performance Profiles, Course Maps, Equipment and Material Lists:

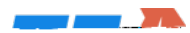
National Center for Construction Education & Research. (2017). *Pipefitting*. Retrieved from National Center for Construction Education & Research: <https://www.nccer.org/workforce-development-programs/disciplines/craft-details/pipefitting>

Recommended Course Activities:

Under the supervision of the instructor, the trainee should be able to do the following through worksheets, projects, reading assignments and exercises:

1. Identify the type of piping system designated by a red color-code.
2. Identify the type of piping system designated by a yellow color-code
3. Identify the type of piping system designated by a green color-code.
4. Identify the type of piping system designated by a bright blue color-code.
5. Identify parts of a drawing:
 - a. Title block
 - b. Scales and measurements
 - c. Symbols and abbreviations
 - d. Notes
 - e. Revision blocks
 - f. Coordinates
6. Interpret the

e.
a.



- f. Isometric drawings
 - g. Spool drawings
 - h. Pipe support drawings and detail sheets
 - i. Orthographic drawings
8. Make field sketches:
 - a. Orthographic
 - b. Isometric
 9. Identify valves that start and stop flow.
 10. Identify valves that regulate flow.
 11. Identify valves that relieve pressure.
 12. Identify valves that regulate the direction of flow.
 13. Identify valve actuators.
 14. Given a select number of valves, match each valve to its given application.
 15. Interpret valve markings and nameplate information.
 16. Read and interpret screwed fitting joint drawings.
 17. Determine pipe lengths between fittings, using the center-to-center method.
 18. Determine pipe lengths between fittings, using the center-to-face method.
 19. Determine pipe lengths between fittings, using the face-to-face method.
 20. Given the length of travel of a 45-degree piping offset, calculate the length of the set.
 21. Given the length of the set and the degree of the fittings, use the table of elbow constants to figure the travel and the run.
 22. Calculate offsets, using the table of multipliers used to calculate offsets.
 23. Calculate the travel of a rolling offset.
 24. Thread pipe, using manual threaders.
 25. Thread pipe, using a threading machine.
 26. Apply pipe joint compound to the male threads of the pipe.
 27. Make up the pipe and fittings.
 28. Install a screwed valve.
 29. Identify various socket weld fittings.
 30. Interpret socket weld drawings.
 - 31.

