## ILLINOIS VALLEY COMMUNITY COLLEGE

### COURSE OUTLINE

**DIVISION:** Workforce Development

**COURSE:** IMT 1207; Pipefitting

Date: Spring 2014

Credit Hours: 2

Prerequisite(s): None

**Delivery Method:**
- [x] Lecture: 1 Contact Hours (1 contact = 1 credit hour)
- [ ] Seminar: 0 Contact Hours (1 contact = 1 credit hour)
- [x] Lab: 2 Contact Hours (2 contact = 1 credit hour)
- [ ] Clinical: 0 Contact Hours (3 contact = 1 credit hour)
- [ ] Online
- [ ] Blended

Offered: [ ] Fall  [x] Spring  [ ] Summer

IAI Equivalent –Only for Transfer Courses-go to http://www.itransfer.org:

**CATALOG DESCRIPTION:**
This course will provide the student with the knowledge and practical applications necessary for the installation and maintenance of building and industrial piping systems. Piping systems and piping components applied to industrial situations will be analyzed.
GENERAL EDUCATION GOALS ADDRESSED
[See the last page of this form for more information.]
Upon completion of the course, the student will be able:
[Choose those goals that apply to this course.]

☒ To apply analytical and problem solving skills to personal, social and professional issues and situations.
☒ To communicate orally and in writing, socially and interpersonally.
☐ To develop an awareness of the contributions made to civilization by the diverse cultures of the world.
☒ To understand and use contemporary technology effectively and to understand its impact on the individual and society.
☒ To work and study effectively both individually and in collaboration with others.
☐ To understand what it means to act ethically and responsibly as an individual in one’s career and as a member of society.
☒ To develop and maintain a healthy lifestyle physically, mentally, and spiritually.
☒ To appreciate the ongoing values of learning, self-improvement, and career planning.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:
[Outcomes related to course specific goals.]
Upon completion of the course, the student will be able to:
1.0 Be able to identify various types of industrial pipe, pipe fittings, pipe hangers, and typical valves used in most industrial applications.
2.0 Be able to acquire the knowledge and skills needed to maintain piping systems, as well as selecting proper methods, sizes, connections, materials, and installation procedures.
3.0 Become familiar with the basics of piping mathematics.

COURSE TOPICS AND CONTENT REQUIREMENTS:
I. Review of Basic Science
   A. Matter -- gases, liquids, and solids
   B. Pressure of liquids
   C. How liquids transmit pressure
   D. Density and specific weight
II. Water Treatment
   A. Sources of water supply
   B. Types of wells
   C. Treatment of raw water/filtration
III. Water Mains & Services
   A. Water distribution systems – types
   B. Installation and joining of pipe
IV. Pipe, Flanges, Pipe Fittings, and Pipe Hangers
   A. Types
   B. Properties of pipe/piping mathematics
V. Piping Symbols & Piping Diagrams
   A. Common symbols for pipe fittings
   B. Isometric, oblique, & 3 vie diagrams
VI. Building Water Supply Systems
   A. Basic building water supply system
   B. Mains, major, & minor, distribution lines

VII. Cross Connections
   A. Definition – situations
   B. Corrective measures

VIII. Valves
   A. Types
   B. Functions

IX. Pumps
   A. Types
   B. Functions

X. Natural Gas Installations
   A. Types
   B. Installation & plumbing of gas systems

XI. LP Gas Systems
   A. Definition -- primary uses
   B. Safety -- relief valves & regulators

XII. Sizing and Venting Gas Systems
   A. Rule of thumb sizing -- pluses & minuses
   B. Types/lengths and pitches

INSTRUCTIONAL METHODS:
Lecture
Demonstration
Multi-media

INSTRUCTIONAL MATERIALS:
Plumbing Design and Installation Ripka, American Technical Publishing 2006
Workbook

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:
Students evaluated on:
   exams
   quizzes
   homework
   attendance

OTHER REFERENCES
Plumbing, L.V. Ripka, American Technology Publishers
“This workforce solution was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timelines, usefulness, adequacy, continued availability, or ownership. This solution is copyrighted by the institution that created it. Internal use, by an organization and/or personal use by an individual for non-commercial purposes, is permissible. All other uses require the prior authorization of the copyright holder.”
## Course Competency/Assessment Methods Matrix

**IMT 1207; Pipefitting**

| Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below. | Direct/Indirect | Assessment of Student Learning | Assessment Options |
|---|---|---|---|---|---|---|---|---|---|
| | | Assessment of Student Learning | Assessment Options |
| 1.0 Be able to identify various types of industrial pipe, pipe fittings, pipe hangers, and typical valves used in most industrial applications. | D | D | D | D | D | D | D | D | D | D | D | D | D | D | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 2.0 Be able to acquire the knowledge and skills needed to maintain piping systems, as well as selecting proper methods, sizes, connections, materials, and installation procedures. | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |