

JEFFERSON COLLEGE

COURSE SYLLABUS

HRA135

INTRODUCTION TO INTERNATIONAL MECHANICAL CODE

3 Credit Hours

Prepared by
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HRA135 Introduction to International Mechanical Code

I. CATALOGUE DESCRIPTION

- A. Prerequisites: Reading Proficiency
- B. 3 Credit Hours
- C. Introduction to International Mechanical Code will prepare students to properly determine ductwork sizing and installation; venting; gas and refrigerant piping; electrical requirements; and apply fresh air requirements to meet mechanical code. (F,S)

II. EXPECTED LEARNING OUTCOMES/ ASSESSMENT MEASURE

Students will determine proper ductwork sizing and installation	Quizzes and Exams
Students will differentiate between different vent pipe materials and their uses	Quizzes and Exams
Students will practice proper installation of gas and refrigerant piping and learn to identify proper installation procedures	Quizzes and Projects
Students will understand electrical requirements and proper sizing for installation of HVAC equipment	Quizzes and Projects
Students will apply fresh air requirements to meet mechanical codes	Quizzes and Exams

III. OUTLINE OF TOPICS

- A. Administration and Enforcement
 - 1. Department of Mechanical Inspection
 - 2. Duties and Powers of the Code Official
 - 3. Approval
 - 4. Permits
 - 5. Inspections and Testing
 - 6. Violations
 - 7. Means of Appeal
 - 8. Temporary Equipment, Systems and Uses
- B. Definitions
 - 1. General Information
 - 2. General Definitions

- C. General Regulations
 - 1. General
 - 2. Protection of Structure
 - 3. Equipment and Appliance Location
 - 4. Installation
 - 5. Piping Support
 - 6. Access and Service Space
 - 7. Condensate Disposal
 - 8. Clearance Reduction
 - 9. Temperature Control
 - 10. Explosion Control
 - 11. Smoke and Heat Vents
 - 12. Heating and Cooling Load Calculations

- D. Ventilation
 - 1. General
 - 2. Natural Ventilation
 - 3. Mechanical Ventilation
 - 4. Enclosed Parking Garages
 - 5. Systems Control
 - 6. Ventilation of Uninhabited Spaces

- E. Exhaust System
 - 1. General
 - 2. Required Systems
 - 3. Motors and Fans
 - 4. Clothes Dryer Exhaust
 - 5. Domestic Kitchen Exhaust Equipment
 - 6. Commercial Kitchen Hood Ventilation System Ducts and Exhaust Equipment
 - 7. Commercial Kitchen Hoods
 - 8. Commercial Kitchen Makeup Air
 - 9. Fire Suppression Systems
 - 10. Hazardous Exhaust Systems
 - 11. Dust, Stock and Refuse Conveying Systems
 - 12. Subslab Soil Exhaust System
 - 13. Smoke Control Systems
 - 14. Energy Recovery Ventilation Systems

- F. Duct Systems
 - 1. General
 - 2. Plenums
 - 3. Duct Construction and Installation

4. Insulation
 5. Air Filters
 6. Smoke Detection Systems Control
 7. Duct and Transfer Openings
- G. Combustion Air
1. General
 2. Primary air
 3. Secondary air
- H. Chimneys and vents
1. General
 2. Vents
 3. Connectors
 4. Direct-vent, Integral Vent and Mechanical Draft Systems
 5. Factory-built Chimneys
 6. Metal Chimneys
- I. Specific Appliances, Fireplaces and Solid Fuel-Burning Equipment
1. General
 2. Masonry Fireplaces
 3. Factory-built Fireplaces
 4. Pellet Fuel-burning Appliances
 5. Fireplace Stoves and Room Heaters
 6. Factory-built Barbecue Appliances
 7. Incinerators and Crematories
 8. Cooling Towers, Evaporative Condensers and Fluid Coolers
 9. Vented Wall Furnaces
 10. Floor Furnaces
 11. Duct Furnaces
 12. Infrared Radiant Heaters
 13. Clothes Dryers
 14. Sauna Heaters
 15. Engine and Gas Turbine-powered Equipment and Appliances
 16. Pool and Spa Heaters
 17. Cooking Appliances
 18. Forced-air, Warm-air Furnaces
 19. Conversion Burners
 20. Unit Heaters
 21. Vented Room Heaters

22. Kerosene and Oil-fired Stoves
23. Small Ceramic Kilns
24. Stationary Fuel Cell Power Systems
25. Heat Recovery Ventilators

J. Boilers, Water Heaters and Pressure Vessels

1. General
2. Water Heaters
3. Pressure Vessels
4. Boilers
5. Boiler Connections
6. Safety and Pressure Relief Valves and Controls
7. Boiler Low-water Cutoff
8. Steam Blowoff Valve
9. Hot Water Boiler Expansion Tank
10. Gauges
11. Tests

K. Refrigeration

1. General
2. System Requirements
3. Refrigeration System Classification
4. System Application Requirements
5. Machinery Room, General Requirements
6. Machinery Room, Special Requirements
7. Refrigerant Piping
8. Field Test
9. Periodic Testing

L. Hydronic Piping

1. General
2. Material
3. Joints and Connections
4. Pipe Installation
5. Valves
6. Piping Installation
7. Transfer Fluid
8. Tests
9. Embedded Piping

M. Fuel Oil Piping and Storage

1. General
2. Material
3. Joints and Connections
4. Piping Support
5. Fuel Oil System Installation

6. Oil Gauging
7. Fuel Oil Valves
8. Testing

- N. Solar Systems
1. General
 2. Installation
 3. Heat Transfer Fluids
 4. Materials

- O. Referenced Standards

IV. METHOD(S) OF INSTRUCTION

- A. Lecture
- B. Videos
- C. Demonstrations

V. REQUIRED TEXTBOOK(S)

International Mechanical Code, (Current Edition), International Code Council.

VI. REQUIRED MATERIALS

None

VII. SUPPLEMENTAL REFERENCES

Handouts

VIII. METHOD OF EVALUATION:

- | | |
|------------|-----|
| A. Exams | 70% |
| B. Quizzes | 30% |

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Technology Center 101; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website, <http://www.jeffco.edu>).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.