

Kennebec Valley Community College

Professional Development Energy Services Programs

Course Syllabus

PDL 010 200 Hour Oil Burner Technician

COURSE NUMBER:	PDL 010	NON-CREDIT HOURS:	200
COURSE TITLE:	200 Hour Oil Burner Course	CLOCK HOURS:	200
PREREQUISITES:	None		
INSTRUCTOR:	VOICE MAIL OFFICE	E-MAIL ADDRESS	
Bruce Bristow	(207-453-5818)	bbristow@kvcc.me.edu	
OFFICE HOURS:	Posted or by appointment		

TEXTS:

- National Oilheat Research Alliance (NORA) Oilheat Technicians Manual, 2008 Silver Edition
- National Fire Protection Agency (NFPA) 31: Standard for the Installation of Oil-Burning Equipment, 2011 Edition, ISBN#978-161665699-7
- National Fire Protection Agency (NFPA) 211: Standard for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances, 2010 Edition, ISBN#978-087765926-6
- Maine Fuel Board, Laws and Rules, 2014 Edition

OTHER MATERIALS:

See attached [tool list](#) or see instructor

COURSE DESCRIPTION:

This course will prepare students with the education and skills necessary to acquire a State of Maine Journeyman 1&2 Oils – Up to 15 GPH license. The classroom curriculum includes lecture and open discussion about combustion theory, oil tank installation, oil burner component identification, basic electricity, oil burner controls and testing, service procedures and customer service. The shop component will allow students to receive hands on experience on live fire units. The lab curriculum will include basic tool use and safety, electrical safety, mechanical troubleshooting, annual tune ups, electrical testing and troubleshooting of oil burner controls and devices. Students can anticipate 110 +/- hours of lecture/discussion and 90 +/- hours of lab activities.

COURSE OBJECTIVES:

Upon successful completion of this course, the student should be able to:

1. Identify different types of oil heating equipment.
2. Identify the components of an oil heating system.
3. Apply knowledge of adopted code standards to an existing or new oil heating installation.
4. Competently assist in the installation of an oil fired heating system.
5. Apply knowledge of control components to heating system operation.
6. Describe the sequence of operation in heating control systems.
7. Maintain/Tune-up various types of oil heating systems.

8. Employ safety procedures used in the handling of materials used to install and service heating equipment.
9. Record data of heating system operation and function.
10. Communicate effectively with customers and co-workers regarding oil heating topics.

COURSE CONTENT:

- 1.) Course Outline (Topical):
Principles, Theories & Basic Electricity (12 Hours Lecture/16 Hours Lab)
 - Fuel Oil Properties
 - Fuel Oil Problems
 - Oil Burners
 - Basic Electricity

- 2.) Components and Controls for Oil heating Systems (24 Hours Lecture/16 Hours Lab)
 - Ignition Systems
 - Motors, Fans & Couplings
 - Primary Controls, Limit Controls & Thermostats
 - Outdoor Reset Theory & Terminology

- 3.) Fuel Systems and Venting (24 Hours Lecture/16 Hours Lab)
 - Tanks
 - Piping
 - Fuel Units & Oil Valves
 - Fuel Pumps & Oil Valves
 - Nozzles & Combustion Chambers
 - Draft & Venting
 - Combustion Air Zone
 - Combustion
 - Ventilation Air

- 4.) Heating Systems & Customer Relations (15 Hours Lecture/24 Hours Lab)
 - Heating Systems
 - Heat Loss
 - Preventative Maintenance
 - Service Procedures
 - Customer Service

- 5.) Hydronics (6 Hours Lecture/8 Hours Lab)
 - Piping of hydronic heating systems
 - Expansion tank theory
 - Systems design
 - Valve placement in a hydronic system
 - Piping Materials used in hydronic heating systems

- 6.) Codes (24 Hours Lecture/15 Hours Lab)
 - Maine Laws & Rules
 - NFPA 31- Standard for the Installation of Oil-Burning Equipment

- NFPA 70- National Electrical Code
- NFPA 90B- Installation of warm air heating and Air Conditioning systems
- NFPA 211- Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances
- NORA Oil heat Technicians Manual

COURSE ACTIVITIES:

- Hands on control system wiring on lab heating units.
- Troubleshooting heating control system labs.
- Piping hydronic heating systems.
- Servicing labs for heating systems.
- Wiring low voltage thermostats and zone valves.
- Oil tank piping and installation
- Flaring copper tubing
- Soldering copper piping

GRADING:

The individual's evaluation for a grade will be based on:

Quizzes 40%

Lab Evaluation 30%

Comprehensive Final Exam 30%

Additional Notes on Course Grading:

Lab projects will be collected and graded for accuracy and content using the following system:

√+ = (100 points) Numbers are accurate, work is neat, responses are clear. √ = (85 points) Errors in procedures, work is neat, responses are clear.

√- = (75 points) Errors in procedures, work is hard to read, responses not clear or absent. √-- = (65 Points) A major section of the lab is incomplete, errors throughout the lab,

Incomplete = (0 points) Sufficient amount of lab is not completed or not handed in, work has not been validated by the instructor

Late Work:

Lab work and assignments will not be accepted after the due date. All late work will be recorded as a zero.

Students who are absent the day a test or quiz is assigned are required to make up the test / quiz within 4 classes.

Failure to make up the tests/quizzes will be recorded as a zero. Students are responsible for making any necessary arrangements with the instructor. There are no make-up days for missed classes or lab time.

ATTENDANCE POLICY:

Students are not allowed to miss more than 10 hours of class time. Tardiness will be recorded as time missed.

STUDENTS WITH DISABILITIES:

In accordance with state and federal law, this College is committed to assisting qualified students with disabilities achieve their educational goals.

If you are in need of an accommodation in this course:

- Students must contact the Dean of Students, Enrollment Services Center, Frye Building, 453-5019, knormandin@kvcc.me.edu
- Students must provide current, appropriate documentation of their disability.

- Students must make a timely request for accommodation to the Dean of Students.
- Accommodations will not be provided until the faculty member receives a letter requesting accommodations. This letter is created with the Dean of Students and is supported by the documentation of said disability.
- Requests for accommodation must be renewed each semester for each course.

This document is available in enlarged print and on audio tape. Please contact the Dean of Students at 453-5019 or knormandin@kvcc.me.edu

NOTICE OF NON-DISCRIMINATION

Kennebec Valley Community College does not discriminate on the basis of disability in the admission to, access to, or operation of its programs, services or activities. Students requesting classroom accommodation should be forwarded to the Director of the Marden Center located in King Hall Room 130. The Director of the Marden Center can be reached by calling 453-5084. Students may also be forwarded to the Dean of Students located in the Enrollment Service Center in the Frye Building Room 131. The Dean of Students can be reached by calling 453-5019. Complaints about College decisions related to disability accommodations or discrimination must be forwarded to Affirmative Action Officer and ADA Compliance Officer, located in the Enrollment Services Center, Frye Building Room 129, 92 Western Avenue, Fairfield, ME 04937. Contact information is: 453-5117.