

NASSAU BOCES - ADULT EVENING PROGRAM
Joseph M. Barry Career & Technical Education Center
1196 Prospect Ave.
Westbury, NY 11590

COURSE OUTLINE

Course Name: **Oil Burner I**
Weeks: 9
Sessions: 18
Hours 54
Days/Time Tue/Thu 7-10pm
Instructor: Larry Askew
Required Textbook: NORA – Oil Heat Technicians Manual
Prerequisites: None.
Adult evening Office: (516) 622-6950

Course Overview:

Instruction is provided in theory of basic oil burner installation, piping, pumps, valves and nozzles. Basic electricity is also covered with concentration on wiring for steam, hydronic and hot air systems.

Certificate Program: Heating Systems Service Certificate – requires Oil Burner I and Oil Burner II, Plumbing I, Gas Burner and Hydronics for a total of 207 hours.

Course Topics

- Session 1 Recommended basic tools (Not a requirement to pass course)
 - Heating Oil and Properties
- Session 2 Oil Tanks Size and locations
 - Oil lines sizing
- Session 3 Types of oil burners: Flame Retention and conventional
 - **Hands on:** each student will disassemble an oil burner and name the various parts and reassemble the burner.
- Session 4 Nozzles: purpose and types
 - Electrodes: purpose and adjustments
 - **Hands on:** Have students remove electrodes and nozzle from Nozzle line assembly.
 - Re-install same and adjust to specification
 Ignitors and transformers troubleshooting and sizing
- Session 5 Oil pumps: sizing, servicing and troubleshooting
 Oil burner motors: Split Phase and PSC
 Trouble shooting, sizing and servicing
- Session 6 Oil primaries:
 a. R117 stack controls
 b. R8184, R7184A, R7184B,R7184U

- Session 7 Thermostats:
- setting heat anticipator
 - Finding best location for T-stat
 - Installing T-stat
- Session 8 Combustion efficiency testing:
- Draft testing
 - Smoke testing
 - CO2 testing
 - Stack temp. testing
 - Show **NORA film** on combustion efficiency testing
- Session 9 **Live fire of oil burner:**
- Show bleeding of oil pump
 - Show the effects of primary air adjustment
 - Show adjustment of over the fire draft
 - Perform live combustion efficiency test.
- Session 10 **MID-TERM EXAM**
- Session 11 Chambers, chimney sizing:
- Combustion air requirements and design layout
 - Hot Air System controls and layout:
 - Fan & Limit switch settings and operation
 - Blower Motor and Humidifier
 - Complete wiring diagram and sequence of operation
- Session 12 Steam system controls and layout:
- Pressure control
 - Low water cutoff
 - Water feeders
 - Complete wiring diagram and sequence of operation
- Session 13 Hot water System controls and layout
- Direct and reverse aquastats
 - L8184A dual aquastat
 - L8124C Triple aquastat
 - Circulators
 - Complete wiring diagram of a single zone system with sequence of Operation
- Session 14 **Hands on:** student physically wiring and firing hot air furnace Session 15.
- Session 15 **Hands on:** student physically wiring steam systems
- Session 16 **Hands on:** students physically wiring hot water system
- Session 17 **FINAL EXAM**
- Session 18 **Nora Film on a typical service call to address a no heat call**