



## **BB-401 Syllabus**

**Boiler / Burner Class is set up as a three part course. It is offered to all members but is best suited for those members who have basic electrical skills.**

**Part 1: Class starts with orientation meet & greet with a discussion about electrical and boiler room safety. Class covers functions of flame safeguards and boiler / burner controls & safety devices. Lab exercise challenges the members to wire and perform static test procedure on (3) different flame safeguard devices. At the completion of this part of the course members will be given a 25 question test and should have gained an understanding of boiler / burner controls, sequence of operation, wiring and troubleshooting controls & safety devices.**

**Part 2: Class starts with discussion on combustion safety and carbon monoxide hazard awareness. ESCO Institute books will be issued with a \$50.00 book fee. Members are required to read both ESCO books to prepare themselves for ESCO Institute “Combustion Analysis & Carbon Monoxide” certification test. Test is administered at end of class. Course covers combustion theory adjustment and troubleshooting, fuels, regulators, Boyle’s Law & clocking gas meters, stack draft, and tools of the trade (combustion analyzers & manometers). Lab exercises provide hands-on combustion analysis & adjustment, measuring draft and clocking gas meters. Fireside inspection of Cleaver Brooks horizontal firetube boiler. Troubleshooting lab work and various class projects. At the completion of this part of the course members will be given ESCO test and should have gained an understanding of combustion chemistry, adjustments & troubleshooting, effects of draft and clocking gas meters.**

**Part 3: Class covers operation, wiring, programming and troubleshooting Honeywell, Siemens, Fireye & Autoflame parallel positioning boiler / burner controls. Feedwater pumping systems, deaerators, digital pressure and temperature controls, and the four parts of steam systems are covered. Lab exercises include hands-on work on parallel positioning trainers, utilize central heating plant for instructional training. Heating plant is a working primary / secondary type hydronic system with (2) Fulton Vantage condensing boilers equipped with Siemens RWF40 digital temperature control and Siemens LMV37 & LMV51 combustion controls. Troubleshooting lab work and class projects. Possible jobsite field trip.**