

STEAM ENGINEERING INSTITUTE

CONTINUING EDUCATION PROGRAM

Course: Industrial Maintenance

Continuing Education Hours: 26

Textbook "Industrial Maintenance" Published by American Technical Press, 2006.
"Industrial Maintenance Student Workbook:" Published by American Technical Press.
"CD-ROM" Published by American Technical Press

Assignment: **Follow student study guidelines.** Answer the questions in at the end of each lesson in student's workbook. **At the end of your course send in all of your assignments to your instructor for review.**
You will be notified of where and when to appear for your final examination.
Photo identification is required at final examination.

PUT YOUR NAME AND DATE ON EACH ASSIGNMENT

Course will concentrate on Industrial Maintenance as it applies to high pressure steam plants.

Lesson 1

Maintenance Principles

Maintenance organizations, scheduled and unscheduled maintenance, preventive maintenance, work orders, plant survey, log books, Inventory control, vibration analysis, lube oil analysis, thermography, ultrasonic analysis, electrical analysis, troubleshooting, advancement in maintenance trades.

Lesson 2

Safety

Regulatory agencies, codes and standards, fire safety, electrical safety, lockouts/tag outs confined spaces & permits, emergency plans, hazardous materials, industrial hygiene, OSHA, first aid, classes of fires.

Lesson 3

Service and Repair Principles

Equipment operation principles, service and repair documents, fastening methods, welding, tools, test tools, simple machines, horsepower, service and repair documents, hazardous material disposal, material identification, mechanical repairs.

Lesson 4

Electrical Principles

Ohms Law, electrical circuits, short circuits, series and parallel circuits, drawings and diagrams, power distribution, Ac & DC voltage, ground circuits, emergency generators, electrical test equipment, over current protection, heating elements, lighting, motors, preventive maintenance.

Lesson 5

Refrigeration Systems

Mechanical compression refrigeration, refrigerants, condensers, metering devices, evaporators, accessories, temperature control, heat pumps, chilled water systems, cooling towers, vacuum pumps, leak testing.

STEAM ENGINEERING INSTITUTE

Lesson 6

Boiler Systems

Boiler systems, boiler codes, electric boilers, boiler fittings, condensate return tanks, low water cutoffs, steam traps and strainers, combustion, combustion controls, boiler room logs, safety device testing boiler water treatment.

Lesson 7

HVAC Systems

Air handlers, terminal units, building conditions, relative humidity, air filters, electrostatic precipitators, pneumatic controls, dampers & louvers, controls, trouble shooting, & maintaining HVAC systems, indoor air quality.

Lesson 8

Mechanical Systems

Lubricants, lubrication selection, bearings, oil seals, mechanical drive systems, belt drives, chain drives, gears, couplings, pullers, shaft alignment, vibration analysis, preventive maintenance, bearing failure analysis, hydraulic systems, hydraulic system maintenance.

Lesson 9

Trouble Shooting

Safety, PM requirements, system troubleshooting, operators manuals, trouble shooting reports, boiler flame failure, intermittent electrical problems, electric motor failure, hydraulic press failure,

This course will offer 26 hours of credit for license renewal. An additional four-hour course on MGL Chapter 146 and 522CMR is required to receive a thirty-hour certificate for license renewal. Mass. Gen Laws module is included the cost of this course.