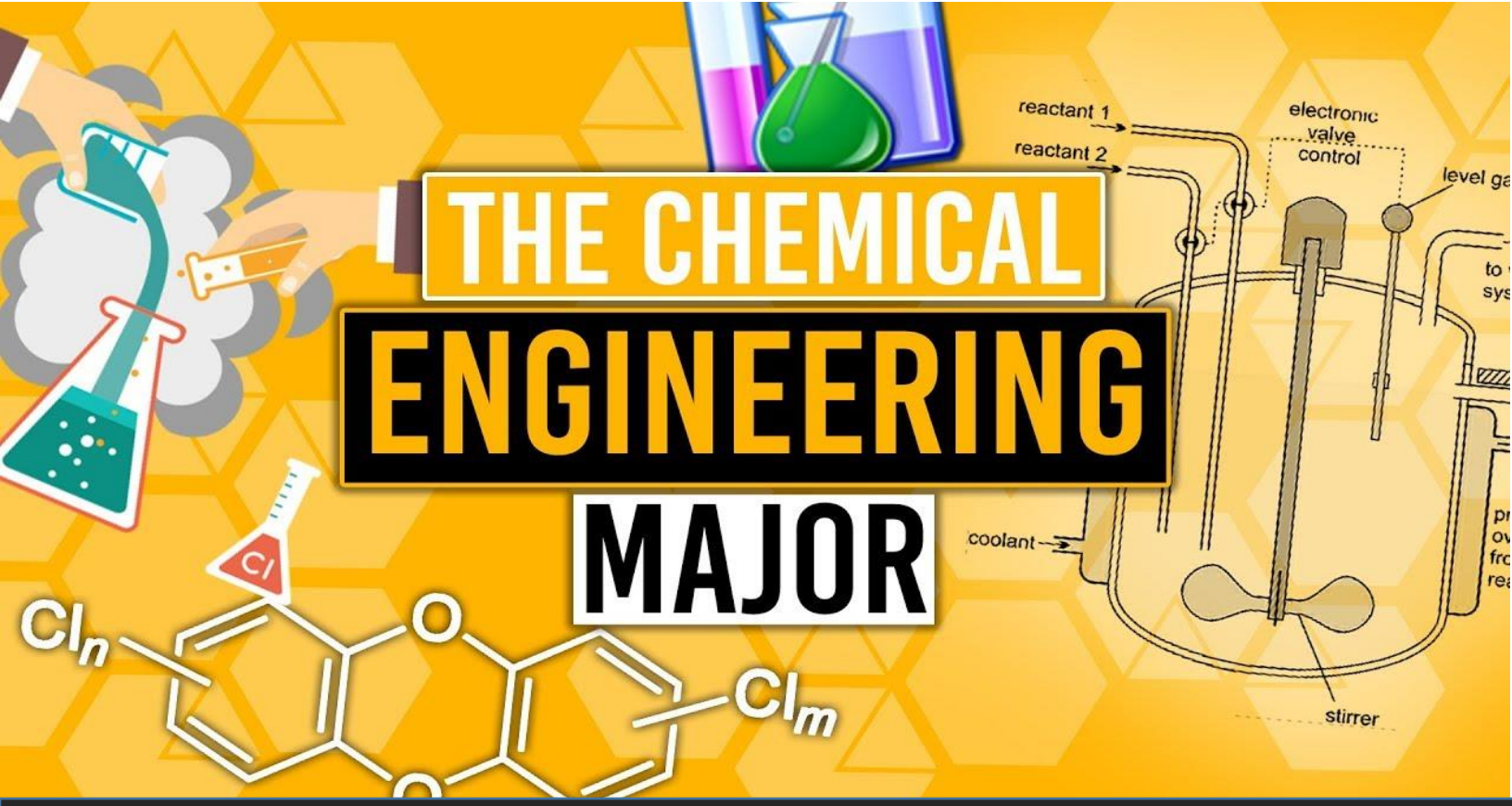

Boiler Operations and Maintenance with Inspection, Repairs and Alterations Combo Course - ASME

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Training & Consultancy

Boiler Operations and Maintenance with Inspection, Repairs and Alterations Combo Course - ASME

Course Overview:

Boilers are important energy consuming equipment in most manufacturing plants, and their production of steam or hot water generally uses old and well proven technology. Basic boiler technology has changed relatively little over the years, although significant achievements have been realized in recent years in the area of controls. Boilers are a closed vessel under high pressure and high temperature in most industries plants and their production are steam or hot water. This course will familiarize the participants with the operation and maintenance of boilers.

Who Should Attend?

This course is recommended for anyone involved with the selection, operation, maintenance and troubleshooting of pumps. Such as Mechanical Maintenance Engineers, Under Development Engineers, Mechanical Maintenance Supervisors &Technicians and Operation Engineer.

Course Language

The Presentation, supplied documents, and workshop exercises of the course are in English; however, based on the trainees' desires, use of bilingual (English and Arabic) for oral explanation is available.

Course Duration / Schedule

The Course Duration Will Be Five Days

Objectives:

By the end of this course the participants will:

- Know more information about boiler classification.
- Know the Factors affecting the design boilers.
- understanding the Combustion principles
- understanding boiler Operation , start–up and shutdown Procedures
- Know and Understanding control and protection of boiler.
- understanding Boiler Inspection During Operation
- Know and Understand the Boiler Maintenance and Troubleshooting

Course Contents:

Chapter (01) Introduction to Boilers

- Boiler function
- Types of Boilers
- Fire tube boilers
- Water tube boilers
- Once through boilers
- Thermal fluid systems
- Equipment selection
- Factors affecting the design boilers
- Choice of fuel
- Light Fuel Oil
- Heavy Fuel Oil
- Natural gas
- Fuel characteristics
- Heating value

Chapter (02) Water - Steam circulation system

- Water - Steam circulation system is:
- Steam Drum
- Economizer
- Supper heaters
- Re heaters
- Boiler safety valves
- Boiler automatic control

Chapter (03) Air - Flue Gas System

- Forced Draft Fan (FD Fan)
- Gas Recirculation Fan (GR Fan)
- Burner System
- Gas Burner
- Oil Firing System
- Furnace
- Air Pre Heater (Regenerative Air Heaters)
- Steam Air Pre heater
- Soot Blower System

Chapter (04) Boiler principles of operation.

- Water treatment.
- Boiler Safety.
- Major causes of boiler explosions.
- Boiler safeguards and interlocks.
- Alarm and annunciators.

Chapter (05) Preparation for Startup.

- Fundamental procedures for boiler startup.
- Verifying the fuel supply.
- Verifying the water supply.
- Lining up the fuel system.
- Lining up the condensate and feed-water system.
- Lining up the air system.
- Starting the auxiliary systems.

Chapter (06) Boiler Startup

- Basic startup procedures for a typical boiler.
- Selecting the appropriate fuel supply.
- Placing the control stations in the “hand” position.
- Starting the forced draft fan.
- Purging the boiler.
- Adjusting the forced fan control station.
- Preparing the ignitor for operation.
- Starting the burner.
- Adjusting the fuel and forced draft fan control stations to automatic operation.
- Bringing the boiler up to normal operating temperature and pressure.

Chapter (07) Boiler Malfunctions and Shutdown

- Abnormal conditions.
- Boiler routine inspection.
- Normal Shutdown Procedures.
- Basic shutdown procedure.
- Placing the combustion control system in manual.
- Decreasing the firing rate.
- Depressing “emergency stop” pushbutton.
- Shutting down the auxiliary systems.
- Summarize Lesson Learnt
- Evaluation / Examination
- Course Closeout