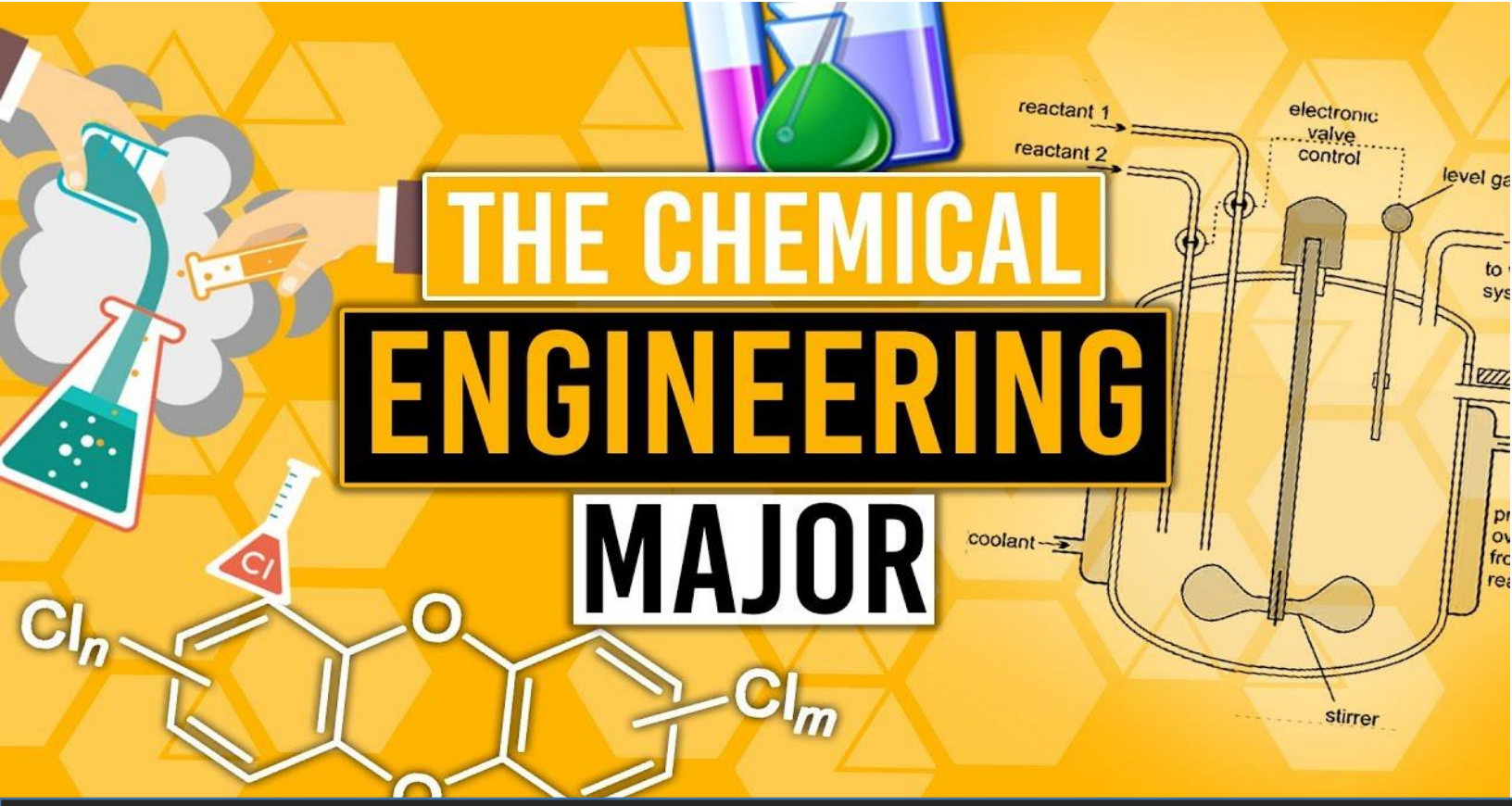

Boiler Plant Operation & Management

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BTS
Training & Consultancy

Boiler Plant Operation & Management

Introduction:

The boiler plant operation and management course is an intensive, highly practical course. The candidates will gain the most up-to-date information and practical understanding of the installation, operation, maintenance and management of boiler plants. The course will give you the ability to recognize and solve boiler problems simply, easily and with confidence. The main focus of this course will be on:

- · The installation, operation, maintenance and management of boiler plants
- · The steam and combustion processes
- · Safe boiler operation techniques
- · About pollutants and the technologies that exist to reduce emission levels
- · How to achieve peak boiler plant efficiencies
- · How to identify and troubleshoot boiler problems quickly and efficiently

Who Should Attend?

Boiler Plant Construction Managers, Consulting Engineers, Design Engineers, Insurance Company Inspectors, Mechanical Engineers and Technicians, Operation, Maintenance, Inspection and Repair Managers,

Supervisors and Engineers, Plant Engineers, Senior Boiler Plant Operators, Repairers and Installers

Course Objectives:

At the end of this seminar participants will be able to:

- Identify the various types of boilers
- Use essential terms and understand their key applications
- Describe the typical characteristics of fuels fired
- Perform basic combustion and process calculations
- Recognize the impact fuels have on the boiler heat transfer surfaces
- Describe the ancillary equipment associated with steam boiler plants and their integral role in the safety of the boiler
- Discuss the correct operation, control sequences and procedures for the safe operation of a typical fire-tube boiler plant
- Outline the applicable pressure part design codes and explain their influence on boiler pressure parts sizing, inspection and non-destructive examination
- Initiate an effective inspection and maintenance program

• Minimize forced outages and prevent serious damage to boiler equipment

• Provide an overview of the legislative requirements plus the essential steps and responsibilities for the repair of boilers

• Recognize the importance of and implement the procedures for the protection of a boiler during cold storage

• Outline the technologies available for the reduction of emission levels and the applicable international legislative controls

Course Outline:

Introduction

- Types of package boilers and their applications
- Boiler components, terminology and definitions

· Fuel Combustion and the Steam Generation Process

- Overview of the boiler heating and steam generation process
- Influence of the fuel type on the boiler design operation
- Firing appliances
- Basics to theory of combustion
- Thermal efficiency
- Fireside deposits and corrosion

· Boiler Auxiliary Plant

- Water treatment plant and dosing
- Feedwater pumps
- Valves and steam traps
- Piping
- Fans
- Economizers and heat recovery equipment
- Flue gas cleaning and dust removal

· Operation and Controls

- Boiler instruments and their purpose
- Typical P&I diagrams for coal and oil/gas fired units
- Control systems and system operating philosophy
- Operational sequences and procedures
- Safety equipment and interlocks
- Safety procedures and emergencies
- Operating records and logs
- Typical operational problems, the reason for the problems and 'troubleshooting'

· Pressure Containing Components

- Basics to codes calculation theory and assumptions
- Overview of design parameters for shell, furnace, plates and tubing
- Importance of pressure part inspection

· Planning and Managing Boiler Maintenance

- Critical importance of maintenance policies and programs
- Setting up an inspection program

- Types of boiler inspections
- Involvement of the Authorized Inspection Authority (AIA)
- Maintenance information and procedures
- Developing a preventive maintenance program
- In-house verse contractor repair maintenance

· Managing Boiler Repairs and Modifications

- When does a boiler repair become a boiler modification?
- Importance of historical records
- Understanding the legislative requirements
- Steps to be taken when a ‘defect’ is identified
- Responsibility of the boiler owner
- Responsibility of the boiler repair contractor
- The AIA and their inspection points

· Cold Storage of a Boiler

- Clearly establishing the storage period
- Storage period and critical preservation steps
- Storage instructions and procedures
- Consequences of no storage plan

· Control Principles and Design Concepts

- Water level indicators and measuring devices
- Draft and its function in the combustion process, draft types and measurement
- Protection against implosion

· Emission Controls and Environmental Constraints

- Types of emissions for different fuels fired
- Methods used for controlling boiler flue gas emissions
- Effectiveness of various types of cleaning equipment
- What emission levels are specified in international standards or legislation?