You will learn:

- 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:

- Senior Boiler Plant Operators, Repairers & Installers
- Boiler Plant Construction Managers
- Plant Engineers
- Operation, Maintenance, Inspection & Repair Managers, Supervisors & Engineers
- Mechanical Engineers & Technicians
- Design Engineers
- Insurance Company Inspectors
- Consulting Engineers
THE WORKSHOP

The Boiler Plant Operation and Management workshop is an intensive, highly practical and useful two-day workshop. You will gain the most up-to-date information and practical understanding of the installation, operation, maintenance and management of boiler plants. This workshop will give you the ability to recognise and solve boiler problems simply, easily and with confidence.

WORKSHOP OBJECTIVES

This practical two-day workshop will give you the knowledge to enable you 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
- recognise 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 programme
- minimise 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
- recognise 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

PRACTICAL SESSIONS

There are eight practical exercises and assignment sessions to give you the confidence and experience to work on the installation, operation and maintenance of boiler plants.

THE PROGRAM

DAY ONE

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

FUEL COMBUSTION AND STEAM GENERATION PROCESS
- Overview of the boiler heating and steam generation process
- Influence of fuel types on boiler design and operation
- Firing appliances
- Basics to the theory of combustion and fundamentals of steam generation
- Thermal efficiency
- Fire-side deposits and their influences

BOILER AUXILIARY PLANT
- Water treatment and dosing plant
- Feed water pumps, valves, steam traps, piping, fans, and dampers
- Firing systems
- Economisers and heat recovery equipment
- Flue gas cleaning and dust removal
- Soot blowers

Operations and Controls
- Boiler instrumentation and its purpose
- Typical P&I diagrams for coal/oil fired package units
- OEM operating manuals
- Control systems or loops
- Operation and control philosophy, sequences and procedures
- Safety equipment and emergency procedures
- Typical operational problems, reasons for the problems
- Troubleshooting
- Operating records and logs
- The do’s and don’ts of boiler operation and corrective action

Practical session and questions

DAY TWO

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

Practical session and questions

PLANNING AND MANAGING BOILER MAINTENANCE
- Critical importance of maintenance policies and programmes
- Manufacturers literature and requirements
- Regularity of inspections and maintenance
- Critical items for maintenance for safety, efficiency and reliability
- Country/state legislation regarding inspection and repairs
- Authorised inspection authority involvement
- Maintenance records and preventative maintenance
- In-house vs contractor repair maintenance
- The do’s and don’ts in terms of boiler maintenance

Practical session and questions

MANAGING Boiler REPAIRS AND MODIFICATIONS
- When does a boiler repair become a boiler modification?
- Importance of historical records
- Understanding the steps and requirements when undertaking modifications
- Boiler owner and contractor responsibilities
- AIA and their inspection points
- The do’s and don’ts regarding boiler repairs

Practical session and questions

COLD STORAGE OF A Boiler
- Importance of an established storage period, preservation steps and return of the boiler
- Storage instructions and procedures
- Consequences of no plan

Practical session and questions

EMISSION CONTROLS AND ENVIRONMENTAL CONSTRAINTS
- Types of emissions for different fuels fired
- Control of boiler flue gas emission
- Flue gas cleaning and scrubbing equipment
- Oil and gas burner design to reduce NOx emissions
- Effectiveness of gas cleaning or scrubbing equipment
- Acceptable emission levels

Practical session and questions