

TRAINING SESSION PLAN

TITLE: STEAM BOILER ENGINEER GRADE 2

TIME: 08:00AM to 17:00PM

Objective: Trainees will be able to understand the definition, purpose, classification/comparison, fundamentals of steam, and terminology related to steam boilers.

DAY 1

LEARNING POINT	TIME
Registration, Safety Briefing & Breakfast	07:30 AM - 08:00 AM
Introduction to Steam Boilers <ul style="list-style-type: none">• Classification/Comparison• Fundamentals of Steam• Terminology	08:00 AM – 10:00AM (2 hours)
Legislation and Standards for Steam Boilers <ul style="list-style-type: none">• Legislation Overview• Occupational Safety and Health Regulations 1994• Occupational Safety and Health (Plant Requiring Certificate of Fitness) Regulation 2024• OSH(Notification Accident, Dangerous Occurrence, Poisoning and Occupational Disease) Regulation 2004• Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000• Codes of Practice and Guidelines• Roles and Responsibilities of Steam Engineers• Plant Safety, Management, and Maintenance Policy• Boiler House Management	10:00AM – 12:00PM (2 hours)
LUNCH	12:00PM – 13:00PM (1 Hour)
Boiler Design <ul style="list-style-type: none">• Applicable Codes & Standards• Steam Plant Conceptual Design• Boiler Design• Fabrication• Boiler Components• Parts, Essential Fittings, Safety Devices• Practical Demonstration Boiler Model	13:00PM – 16:00PM (3 Hours)

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DAY 2

LEARNING POINT	TIME
Registration, Safety Briefing & Breakfast	07:30 AM - 08:00 AM
Boiler Installation, Testing and Commissioning <ul style="list-style-type: none">• Boiler installation• Testing and Commissioning• Pre-Commissioning – Cause & Effect Matrix• Burner Tuning• Refractory Drying Out Procedure• Alkaline Boiling Out & Post-Inspection Procedure• Steam Test Procedure	08:00 AM – 13:00PM (5 Hours)
LUNCH	13:00PM – 14:00PM
Boiler Operation Operational Responsibilities Overview <ul style="list-style-type: none">• Start-Up / Shutdown• Burner Operation & Interlock• Water Level Control System• Pressure Control System• Furnace Draft Control System• Furnace Purging	14:00PM – 17:00PM (3 Hours)

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DAY 3

LEARNING POINT	TIME
Registration, Safety Briefing & Breakfast	07:30 AM - 08:00 AM
Operational Responsibilities <ul style="list-style-type: none">• Blowdown Control System• Steam Pressure Control System• Test Gauge Glass• Emergency Shutdown	08:00 AM – 10:00PM (2 Hours)
Boiler Water Treatment	10:00AM – 12:00PM (2 Hours)
LUNCH	12:00PM – 13:00PM
Steam Management	13:00PM – 14:00PM (1 Hour)
Boiler Efficiency & Burner Efficiency	14:00PM – 17:00PM (3 Hours)

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DAY 4

LEARNING POINT	TIME
Registration, Safety Briefing & Breakfast	07:30 AM - 08:00 AM
Storage of Idle Boiler <ul style="list-style-type: none"> • Overview of Storage Methods • Dry Storage Using Silica Gel • Dry Storage Using Nitrogen • Dry Storage Using Vapor Phase Corrosion Inhibitors (VpCI) 	08:00 AM – 11:00AM (3 Hours)
Storage of Idle Boiler <ul style="list-style-type: none"> • Wet Storage Using Chemical • Wet Storage Using Nitrogen 	11:00 AM – 13:00PM (2 Hours)
LUNCH	13:00PM – 14:00PM
Introduction to Combustion <ul style="list-style-type: none"> • Combustion Theory • Types of Fuel • Emission Control 	14:00PM – 16:00PM (2 Hours)
Inspection, Maintenance and Repair of Boilers <ul style="list-style-type: none"> • Boiler Defects & Potential Root Causes 	16:00PM – 17:00PM (1 Hour)

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DAY 5

LEARNING POINT	TIME
Registration, Safety Briefing & Breakfast	07:30 AM - 08:00 AM
Inspection, Maintenance and Repair of Boilers <ul style="list-style-type: none">Boiler Defects & Potential Root Causes	08:00 AM – 09:00 AM (1 Hour)
Inspection, Maintenance and Repair of Boilers <ul style="list-style-type: none">Materials, Creep, and FatigueCorrosion and Control	09:00 AM – 13:00PM (4 Hours)
LUNCH	13:00PM – 14:00PM
Inspection, Maintenance and Repair of Boilers <ul style="list-style-type: none">Welding and Welding Mechanical FailureNon-Destructive Testing and Inspection (NDT/NDE)	14:00PM – 16:00 PM (2 Hours)
Boiler Mock-up Test <ul style="list-style-type: none">Practical DemonstrationMock-up TestReview and Discussion	16:00PM – 18:00PM (2 Hours)