

The image shows two male workers in a power plant environment. They are wearing blue long-sleeved work jackets and white hard hats. The worker on the left is wearing safety glasses and is reaching up to adjust a component on a piece of machinery. The worker on the right is also reaching up to work on the same machinery. The machinery is complex, with various pipes, valves, and gauges. A yellow safety railing is visible in the background. The overall scene is industrial and brightly lit.

BWSC
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Guide

Power Plant Training Courses

Power Plant Training

BWSC is pleased to present our new training course catalogue.

As an O&M power plant operator and a service provider, BWSC offers training in all technical disciplines pertaining to power plant operation and maintenance.

The courses are composed of a number of general pre-developed course modules with fundamentals, combined with modules made specifically to the plant in question with regards to equipment brand and type. This creates coherent plant specific courses and makes them different from the standard courses widely offered in the market.

Should you have specific requirements, please contact us in order to arrange courses specifically designed for your requirements and organization.

Furthermore, it is possible to design specific “brush-up” courses, e.g. by combining various topics from different standard courses if so wished.

The courses are usually held at the client’s facility for easy access to the plant for demonstrations. However, some of the more theoretically based courses can be held at BWSC headquarters in Denmark. Further, “Hands-on” and “On-the-Job” training courses can be held at a power plant operated by BWSC.

Please, contact us if you have any special requests:

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1.1 Introduction to the Diesel Power Plant

General

A general introduction to the design and basic operational principles of the diesel power plant.

Course objectives

The participants will be able to understand and explain the:

- Working principle of the diesel engine and its components
- Design and function of the auxiliary systems
- Design and function of the main alternator and the electrical systems
- Function of the control system
- Introduction to the plant documentation

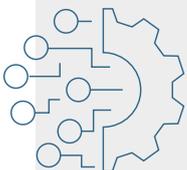
Syllabus

- The Diesel Engine:
 - ▷ Energy conversion, efficiencies and diesel engine types and features
 - ▷ Design and function of the major engine components
- The Auxiliary Systems:
 - ▷ Review of the systems by means of the P&I diagrams with lists plus interpretation of the symbols and TAG numbers used
 - ▷ Identification of components and instruments in the systems
- The Electrical Systems:
 - ▷ Function of the generator and transformers
 - ▷ Review of the electrical systems by means of the overall single-line diagrams and identification of components
- The Control System:
 - ▷ Introduction to operator work stations and interaction with the process



Plant Introduction

Details



Target group:	All staff working with the plant in question
Tuition methods:	Lectures and demonstrations at the plant
Course duration:	5 days

2

Operation

2.1 Operation Procedures

General

Familiarization with operational procedures and routines at the diesel power plant.

Course objectives

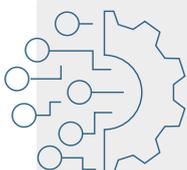
Enable the participants to understand the requirement for operation of a diesel power plant in a safe and reliable way by making them confident with the control concepts, monitoring, start-up and stopping of the equipment, carry out the necessary routine tasks, as well as reaction on alarms and adverse situations.

Syllabus

- Review of the control concepts and descriptions for the engines and auxiliary systems
- Start sequence of the auxiliary equipment, start-up and synchronization of the diesel generator unit under normal conditions and from blackout
- Normal stop of the diesel generator unit
- Start, operation and stop of auxiliary equipment
- Identification of causes and reaction on alarms and adverse operation situations
- Handling and treatment of fuel oils and lubricants
- Water sampling, analyses and treatment
- Recognition and counteracting health, safety, and environmental hazards
- Monitoring of the plant on location



Details



Target group:	All staff working with the plant in question
Tuition methods:	Lectures and demonstrations at the plant
Course duration:	5 days

2.2 Diesel Engine Performance Evaluation

General

A study in the factors that affect the engine efficiency and reliability. How to take performance readings, evaluate these, make diagnoses and optimize the plant performance.

Course objectives

Enable the participants to evaluate the performance of a diesel generator unit and to take the necessary action in order to keep the heat rate and reliability at an optimum level.

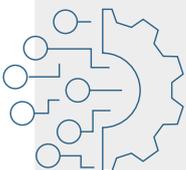
Syllabus

- Fundamental energy conversion, combustion theory, diesel engine and alternator efficiency
- Purpose and procedures for performance readings and evaluation
- Measuring instruments in general and electronic combustion analyzers in particular
- The influence from variations in ambient conditions and fuel properties and how to make corrections of the figures to standard conditions (ISO) for comparison and trending
- Key Performance Indicators
- Make diagnosis at malfunction of the engine and infer the need for corrective action based on the measurements and observations, which among other things include:
 - ▷ Consequences of defective fuel injection equipment
 - ▷ Consequences of defective or incorrect time intake/exhaust valves and fuel pumps
 - ▷ Consequences of fouled or defective turbocharger and air/gas passages
 - ▷ Explain and perform evaluation of the turbocharger
- Measurements and calculations for determination of specific fuel oil, and lube oil consumption
- Performance of the WHRS and auxiliary systems



Operation

Details



Target group:	Operators and senior maintenance staff
Tuition methods:	Lectures, exercises and demonstrations at the plant
Course duration:	3 days



Mechanical

3.1 Maintenance of the Two-Stroke Diesel Engine

General

A detailed review of the maintenance of two-stroke diesel engines.

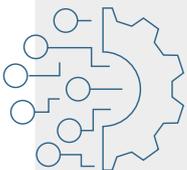
Course objectives

Enable the participants to understand and explain the philosophy, planning, and procedures for maintenance of a large two-stroke diesel engine.

Syllabus

- Maintenance philosophies:
 - ▷ Running hour based
 - ▷ Condition based
 - ▷ Corrective maintenance
- Review of the maintenance tasks and intervals recommended by the engine manufacturer
- Assessment of engine condition
- Maintenance planning
- Safety hazards and precautions
- Special tools
- Measuring tools
- Review of dismantling, inspection, measurements, evaluation assembling, and adjustment of the engine components:
 - ▷ Cylinder cover with valves
 - ▷ Piston complete
 - ▷ Cylinder liner
 - ▷ Fuel injection equipment
 - ▷ Bearings
 - ▷ Mechanical control gear
 - ▷ Turbocharger and air cooler
 - ▷ Instrumentation
 - ▷ Safety systems
- Running-in procedures
- Reconditioning of parts

Details



Target group:	All mechanical maintenance staff
Tuition methods:	Lectures. <i>Can be combined with hands-on training at the owner's plant.</i>
Course duration:	5 days. <i>The course is assumed implemented in connection with engine maintenance.</i>

3.2 Maintenance of the Four-Stroke Diesel Engine

General

A detailed review of the maintenance of four-stroke diesel engines.

Course objectives

Enable the participants to understand and explain the philosophy, planning, and procedures for maintenance of a large four-stroke diesel engine.

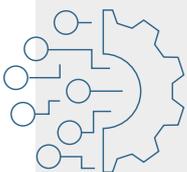
Syllabus

- Maintenance philosophies:
 - ▷ Running hour based
 - ▷ Condition based
 - ▷ Corrective maintenance
- Review of the maintenance tasks and intervals recommended by the engine manufacturer
- Assessment of engine condition
- Maintenance planning
- Safety hazards and precautions
- Special tools
- Measuring tools
- Review of dismantling, inspection, measurements, evaluation, assembling, and adjustment of the engine components:
 - ▷ Cylinder head with valves
 - ▷ Piston complete
 - ▷ Cylinder liner
 - ▷ Fuel injection equipment
 - ▷ Bearings
 - ▷ Mechanical control gear
 - ▷ Turbocharger and air cooler
 - ▷ Instrumentation
 - ▷ Safety systems
- Running-in procedures
- Reconditioning of parts

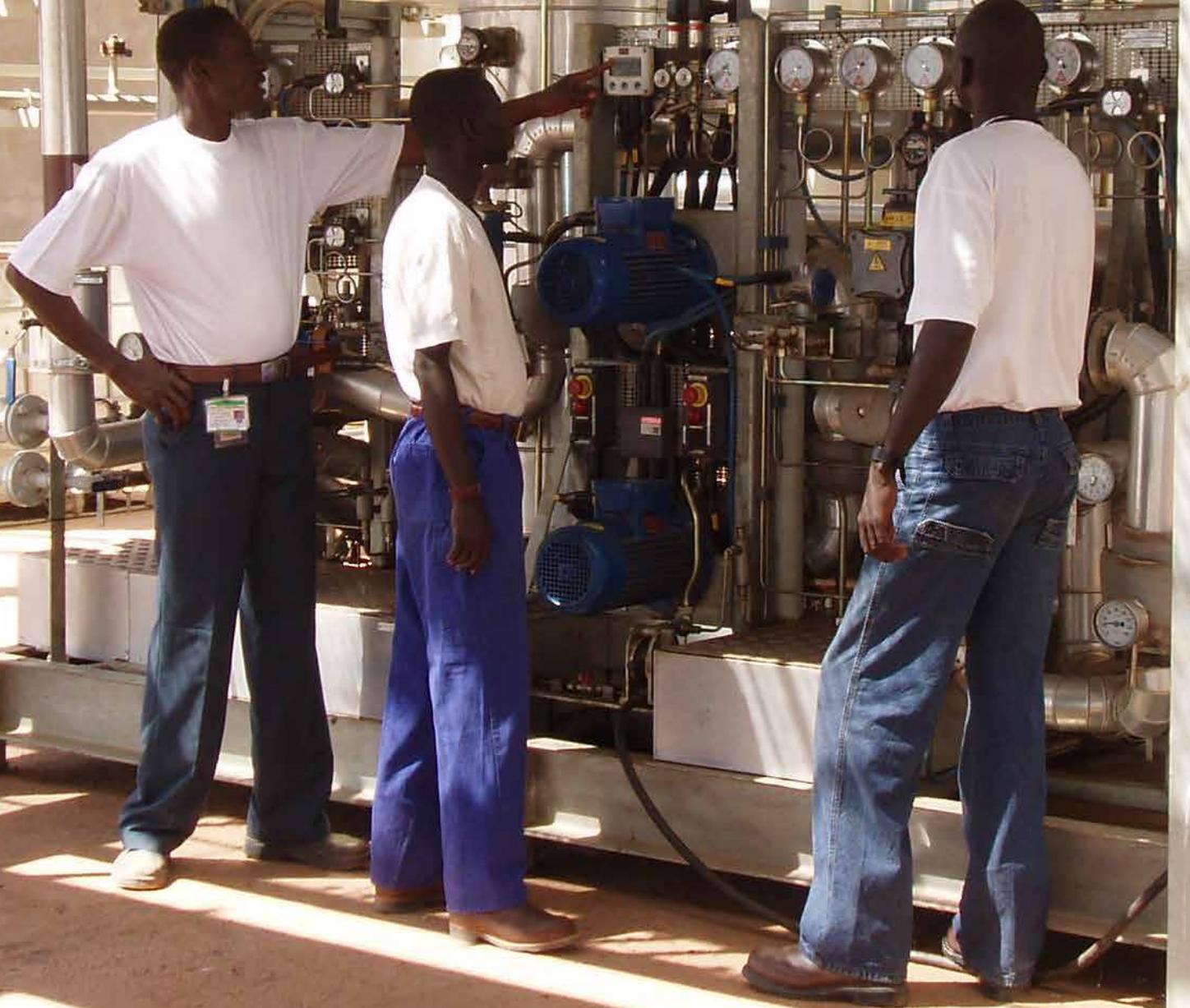


Mechanical

Details



Target group:	All mechanical maintenance staff
Tuition methods:	Lectures. <i>Can be combined with hands-on training at the owner's plant.</i>
Course duration:	5 days. <i>The course is assumed implemented in connection with engine maintenance.</i>



3.3 Maintenance of the Mechanical Aux. Equipment



Mechanical

General

A review of the function and maintenance of mechanical auxiliary equipment at the diesel power plant.

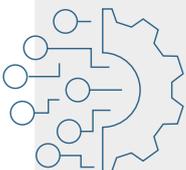
Course objectives

Enable the participants to understand and explain the philosophies, planning, and procedures for maintenance of the mechanical auxiliary equipment at the plant in question.

Syllabus

- Maintenance philosophies:
 - ▷ Running hour based
 - ▷ Condition based
 - ▷ Corrective maintenance
- Review of the auxiliary systems
- Maintenance tasks and intervals recommended by the manufacturers
- Assessment of conditions
- Maintenance planning
- Special tools
- Measuring tools
- Spare parts and consumable
- Review of dismantling, inspection, measurements, evaluation, assembling, and adjustment of the components:
 - ▷ Oil separators
 - ▷ Centrifugal and positive displacement pumps
 - ▷ Air compressors
 - ▷ Filters
 - ▷ Heat exchangers
 - ▷ Steam systems incl. WHRS and turbines
 - ▷ Water treatment plants
- Safety hazards and precautions

Details



Target group:	All mechanical maintenance staff
Tuition methods:	Lectures, exercises, and demonstrations at the owner's plant
Course duration:	5 days

4

Electrical

4.1 Introduction to Electrical Equipment

General

A review of the functionality, maintenance and safety of the electrical equipment at power plants.

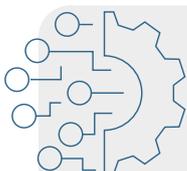
Course objectives

Enable the participants to understand and explain the safety aspects regarding work on electrical systems and the maintenance procedures of the electrical equipment at the plant.

Syllabus

- Maintenance philosophies:
 - ▷ Running hour based
 - ▷ Condition based
 - ▷ Corrective maintenance
- Fundamental electricity and magnetism
- Review of the electrical systems by diagrams and the symbols and TAG numbers used
- Maintenance planning
- Tools, measuring and calibration devices for maintenance
- Troubleshooting
- Function, identification and maintenance procedures of:
 - ▷ Generator
 - ▷ Transformers
 - ▷ High voltage systems with emphasis on breakers and relays
 - ▷ Low voltage systems with emphasis on breakers protective relays and motors
 - ▷ The DC system with emphasis on rectifiers, batteries and the UPS
- Safety hazards and precautions related to work on electrical systems:
 - ▷ Electrical shock and arc flash
 - ▷ Personal Protective Equipment (PPE)
 - ▷ Equipment safety barriers
 - ▷ Planning of work
 - ▷ Hazard identification and mitigation
 - ▷ Risk assessments
 - ▷ Tools and safety equipment

Details



- Target group:** All electrical maintenance staff
- Tuition methods:** Lectures, exercises and demonstrations at the owner's plant
- Course duration:** 5 days

4.2 Generator Maintenance



Electrical

General

A detailed review of the generator maintenance.

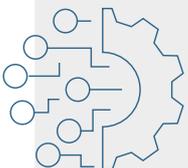
Course objectives

Enable the participants to understand and explain the philosophy, planning, and procedures for monitoring, inspection, and maintenance of generators, and the safety aspects of working with electrical systems.

Syllabus

- Maintenance philosophies:
 - ▷ Running hour based
 - ▷ Condition based
 - ▷ Corrective maintenance
- The generator construction, components and their functionality
- Maintenance tasks and intervals recommended by the manufacturer
- Planning of inspection and maintenance of the generator
- Review of inspection, tests and interpretation of the results of:
 - ▷ Visual inspection
 - ▷ Partial discharge
 - ▷ Insulation resistance test
 - ▷ Polarization index
 - ▷ Stator resistance
 - ▷ Dielectric absorption test
 - ▷ Dielectric discharge test
 - ▷ Voltage drop test
 - ▷ Air gap
 - ▷ PD measurements
 - ▷ Excitation gear
 - ▷ Coolers
 - ▷ Bearings
- Methodology for disassembly, repair, cleaning and assembly of the generator
- Safety hazards and precautions related to work on electrical systems:
 - ▷ Electrical shock and arc flash
 - ▷ Personal Protective Equipment (PPE)
 - ▷ Equipment safety barriers
 - ▷ Planning of work
 - ▷ Hazard identification and mitigation
 - ▷ Risk assessments
 - ▷ Tools and safety equipment

Details



Target group: Electrical maintenance staff and operators

Tuition methods: Lectures and practical exercises at the plant

Course duration: 3 days

The course is assumed implemented in connection with generator maintenance.

4

Electrical

4.3 Generator Excitation System

General

The course is developed to increase the knowledge of personnel operating and maintaining power generation units.

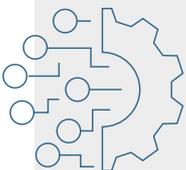
Course objectives

Enable the participants to understand and explain the theory and functionality of the generator excitation system with synchronization, voltage and load control and the safety aspects of working with electrical systems.

Syllabus

- Generator construction and functionality. Stator, rotor, governor and exciter
- Review of fundamental electricity and magnetism
- Control fundamentals:
 - ▷ P, PI, & PID controllers
- Generator excitation system:
 - ▷ Construction and functionality
 - ▷ Main components
 - ▷ Schematic
 - ▷ Automatic voltage regulation
 - ▷ Interfaces
 - ▷ Functions and control modes
 - ▷ Rotating rectifier
 - ▷ Fault finding
- Power generation and voltage control:
 - ▷ Control of active and reactive power (MW, MVAR)
 - ▷ Generator capability diagram
 - ▷ Synchronization equipment
 - ▷ Manual and auto synchronization
 - ▷ Unit load sharing
- Safety hazards and precautions related to work on electrical systems:
 - ▷ Electrical shock and arc flash
 - ▷ Personal Protective Equipment (PPE)
 - ▷ Equipment safety barriers
 - ▷ Planning of work
 - ▷ Hazard identification and mitigation
 - ▷ Risk assessments
 - ▷ Tools and safety equipment

Details



Target group: Electrical maintenance staff and operators

Tuition methods: The course consists of lectures, exercises and site visits

Course duration: 3 days

4.4 Measuring Techniques and Instruments



Electrical

General

A study in the general principles of measuring techniques and measuring instruments.

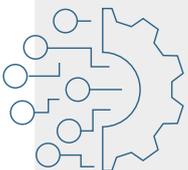
Course objectives

Enable the participants to understand and explain different measuring techniques and instruments as well as to use these techniques and instruments correctly during normal work.

Syllabus

- Advantages and disadvantages of different measuring techniques relating to different expected values:
 - ▷ Pressure measurement
 - ▷ Level measurement
 - ▷ Flow measurement
 - ▷ Temperature measurement
 - ▷ Voltage measurement
 - ▷ Current measurement
- Different measuring instrument such as:
 - ▷ Moving coil instrument
 - ▷ Moving iron instrument
 - ▷ Digital multimeters
 - ▷ Megger
- Measuring systems
- Maintenance of instruments and systems
- Calibration of instruments
- Safety hazards and precautions related to work on electrical systems:
 - ▷ Electrical shock and arc flash
 - ▷ Personal Protective Equipment (PPE)
 - ▷ Equipment safety barriers
 - ▷ Planning of work
 - ▷ Hazard identification and mitigation
 - ▷ Risk assessments
 - ▷ Tools and safety equipment

Details



Target group:	Electrical maintenance staff and operators
Tuition methods:	Lectures and exercises
Course duration:	2 days

4

Electrical

4.5 Electrical Safety

General

Electrical hazards, safety barriers and safety procedures in electrical power systems.

Course objectives

Enable the participants to understand and identify electrical hazards in order to plan and conduct work on electrical installations in a safe manner to prevent injuries to personnel and damage to equipment.

Syllabus

- Electrical hazards:
 - ▷ Electrical shock
 - ▷ Arc flash
- Injuries and safety barriers:
 - ▷ Personal protective equipment (PPE)
 - ▷ Safety barriers in general
 - ▷ Relays and breakers
 - ▷ Safety signs
 - ▷ Tools
- Equipment related safety:
 - ▷ HV, MV, LV installations
 - ▷ Switchboards
- Planning of work:
 - ▷ Working methods
 - ▷ Hazard identification
 - ▷ Risk assessments
 - ▷ Risk mitigation
- International standards related to safety:
 - ▷ Operation
 - ▷ Switchboards
- Safety organisation:
 - ▷ Responsibility

Details



Target group:	Electrical maintenance staff and operators
Tuition methods:	Lectures and exercises
Course duration:	1 day

5.1 Instrumentation and Control Course

General

A study in control fundamentals, sensors, transmitters and control systems.

Course objectives

Enable the participants to understand and explain the safety aspects at work at electrical systems and maintenance, as well as troubleshooting procedures of the control systems at the plant.

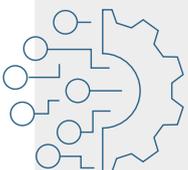
Syllabus

- Control fundamentals
- Transducers
- Transmitters
- The control system:
 - ▷ General application structure
 - ▷ Substations
 - ▷ I/O modules
 - ▷ Operator stations
 - ▷ Software
 - ▷ Control descriptions
 - ▷ Control concepts
- Review of the Alarm & Control lists
- Local and remote instruments
- Measuring techniques
- Calibration
- Troubleshooting
- Safety hazards and precautions related to work on electrical systems:
 - ▷ Electrical shock and arc flash
 - ▷ Personal Protective Equipment (PPE)
 - ▷ Equipment safety barriers
 - ▷ Planning of work
 - ▷ Hazard identification and mitigation
 - ▷ Risk assessments
 - ▷ Tools and safety equipment



Instrumentation and Control

Details



Target group:	All electrical and instrument maintenance staff
Tuition methods:	Lecture and exercises
Course duration:	3 days

5

Instrumentation and Control

5.2 The Distributed Control System (DCS)

General

General introduction to the Distributed Control System.

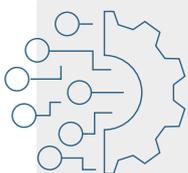
Course objectives

Enable the participants to understand the structure, functionality and features of the Distributed Control System.

Syllabus

- Presentation of the hardware and software platform with reference to the specific power station
- Backup and downloading system files
- Backup and restoring data
- Restore operating system from start
- Troubleshooting on hardware
- Replacement of workstations and components
- Cleaning of equipment e.g. fans in workstations, UPS, etc.
- Replacement of internal back-up batteries in controllers, workstations, etc.
- Visual inspection of DCS hardware
- Replacement of controllers, I/O modules, etc.
- Adding/changing, operator & passwords

Details



Target group:	Operation managers, maintenance managers, engineers and operations staff
Tuition methods:	Lectures and hands-on-training
Course duration:	3 days

5.3 The Distributed Control System – Advanced

General

Advanced training in the Distributed Control System (DCS).

Course objectives

Enable the participants to understand the basic software structure and to enable them to go through troubleshooting procedures and make minor changes in the programming.

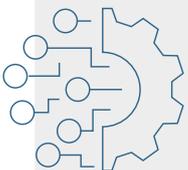
Syllabus

- Detailed presentation of the hardware and software platform with reference to the specific plant
- VDU description and icons
- Programs, libraries and configuration
- Objects and modules
- BWSC standard modules
- Understanding and using system error codes
- Adding or changing graphics to match new plant upgrades
- Configure new I/Os and controllers
- Scan time adjustment for trend data
- Minor program changes
- Troubleshooting on software code



Instrumentation and Control

Details



Target group:	Operation managers, maintenance managers, engineers and operations staff
Tuition methods:	Lecture and exercises
Course duration:	3 days



5.4 Signal Processing Course

General

A study in control fundamentals, sensors, transmitters and signal processing.

Course objectives

Enable the participants to understand and explain the various types of measuring sensors and signal activators used in the control system.

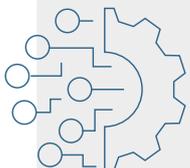
Syllabus

- Control fundamentals
- Measuring principle for:
 - ▷ Temperature
 - ▷ Active or passive sensors
 - ▷ Switches
- Pressure:
 - ▷ Transmitter
 - ▷ Switches
 - ▷ Interactive
- Optical sensors
- Mechanical and electronic sensors:
 - ▷ Frequency
 - ▷ Level
 - ▷ Flow
 - ▷ Distance
- Function principle for positioner and activators
- Signal converters
- Signal processing and communication as analog or digital and various types of network
- Alarm and control topology
- Safety hazards and precautions related to work on electrical systems:
 - ▷ Electrical shock and arc flash
 - ▷ Personal Protective Equipment (PPE)
 - ▷ Equipment safety barriers
 - ▷ Planning of work
 - ▷ Hazard identification and mitigation
 - ▷ Risk assessments
 - ▷ Tools and safety equipment



Instrumentation and Control

Details



Target group:	All electrical and instrument maintenance staff
Tuition methods:	Lectures, exercises and discussions
Course duration:	2 days



Hands-On and On-The-job

6.1 Hands-On Maintenance Training

General

Syllabus and duration to be elaborated on request and in cooperation with the customer.



6.2 On-The-Job Training for Operators

General

Training visit to a power plant operated by BWSC.

Diesel power plant, gas engine plant or biomass/WtE steam turbine power plant.

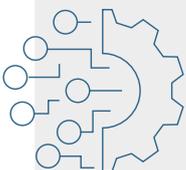
Course objectives

A presentation of how an efficient power plant organization works – based on BWSC's experience as a power plant operator.

Syllabus

- Presentation of BWSC and the actual power plant
- The power plant organization
- Safety:
 - ▷ Safety induction
 - ▷ Safety organization
 - ▷ Occupational Health and Safety
 - ▷ Documents and reporting
- Review of operating procedures:
 - ▷ Plant rounding
 - ▷ Control room routines
 - ▷ Dispatch procedures
 - ▷ Start-up, shut-down, cold/warm standby
 - ▷ WHR boiler operation
 - ▷ Sampling and analysis of fuel and water
 - ▷ Fuel handling procedures
 - ▷ Handling of sludge, solid waste, boiler ash effluent, etc.
 - ▷ Shift roster and, handing over of a shift
- Technical review of the power plant:
 - ▷ Interface between the maintenance and operation sections
 - ▷ Operation, work orders, etc.
 - ▷ Log and reporting systems
 - ▷ Plant performance management
 - ▷ Computerized Maintenance Management System (CMMS)
 - ▷ Participation in operation shift and maintenance tasks respectively (optional)
- Plant tours
- General exchange of experience

Details



Target group:	Plant management and senior operations staff
Tuition methods:	The course consists of presentations, plant tours and discussions
Course duration:	To be agreed upon



Hands-On and On-The-Job



General

7.1 Waste Heat Recovery – Co-generation

General

A study in various concepts as well as O&M of waste heat recovery system (WHRS).

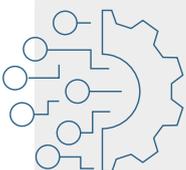
Course objectives

Enable the participants to understand how to optimize the plant efficiency and reduce the emissions by utilizing the waste heat.

Syllabus

- Review of the potential sources for heat recovery at the power plant
- Well proven concepts for utilization of waste heat:
 - ▷ WHR steam boilers and turbine generator (combined cycle)
 - ▷ Industrial/district heating
 - ▷ Industrial/district cooling (absorption chiller)
- Examples of potential off-takers:
 - ▷ Breweries
 - ▷ Distilleries
 - ▷ Hotels
 - ▷ Refineries
 - ▷ Office complexes
 - ▷ Residential complexes
- Benefits:
 - ▷ Less impact on the environment
 - ▷ Reduced overall fuel costs/additional income
 - ▷ Lifetime extension - bridging to renewable power

Details



Target group:	Operations staff and mechanical maintenance staff
Tuition methods:	Lectures, exercises and demonstrations at the plant
Course duration:	1 day

7.2 Diesel Engine Fuels

General

Review of the different diesel engine fuels, their classification, properties and influence on the engine performance.

Course objectives

Enable the participants to specify fuel, interpret fuel oil laboratory analyses and handle the fuel treatment equipment and the engine accordingly.

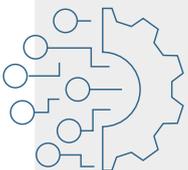
Syllabus

- Crude oil compositions
- The refinery process
- Fuel oil standards: BS, ISO, CIMAC
- Fuel oil types for diesel engines: GO, MDO, HFO
- Fuel oil characteristics:
 - ▷ Viscosity
 - ▷ Density
 - ▷ Calorific value
 - ▷ Sulphur
 - ▷ Ignition properties
 - ▷ Stability and compatibility
 - ▷ Impurities/contamination
- The influence of different fuel oil properties and impurities on the diesel engine and the auxiliary equipment
- Fuel oil sampling
- Interpretation of laboratory analysis
- Fuel oil handling: heating, pumping, purification, mixing, etc.
- Requirements to the fuel oil supplier and to the testing laboratory
- Fuel oil quality trends



General

Details



Target group:	Plant management and engineers
Tuition methods:	Lectures
Course duration:	1 day



General

7.3 Engine Lubricants

General

Review of lubricants, their function, properties and classification.

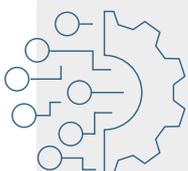
Course objectives

Enable the participants to explain how to specify and handle lubricants and interpret lube oil laboratory analyses.

Syllabus

- Lubricating fundamentals:
 - ▷ Friction
 - ▷ Hydrodynamic lubrication
 - ▷ Cooling
 - ▷ Neutralization
 - ▷ Dirt carrier
 - ▷ Oil additives
- Classification of lube oils:
 - ▷ Viscosity classification SAE
 - ▷ Quality classification API
- System oil for diesel engines:
 - ▷ Oxidation stability
 - ▷ Corrosion prevention
 - ▷ Alkalinity (BN)
 - ▷ Cleaning ability
 - ▷ Bacterial infection
- Cylinder lubricating oil
- Contaminants of main system oil:
 - ▷ Water
 - ▷ Carbonaceous matter
 - ▷ Abrasive matters
 - ▷ Oxidation products
 - ▷ Cylinder lubricants
 - ▷ Fuel
- Cleaning of circulating oils
- Lube oil sampling
- Lubrication oil analyses:
 - ▷ Water content
 - ▷ Flash point
 - ▷ Viscosity
 - ▷ Strong Acid Number (SAN)
 - ▷ Total Acid Number (TAN)
 - ▷ Total Base Number (TBN)
 - ▷ Insolubles
 - ▷ Pentane and Toluene
 - ▷ Ash content
 - ▷ Biological infection
- Handling of lubricants
- Other lubricants:
 - ▷ Gear oil
 - ▷ Compressor oil
 - ▷ Transformer oil
 - ▷ Grease
- Operation troubles associated with lubrication
- Disposal of used lubricants

Details



Target group: Plant management and engineers

Tuition methods: Lectures

Course duration: 1 day

7.4 Environmental Management



General

General

An introduction to generating electricity in an environmentally friendly way.

The main sources of environmental impact are reviewed and the abatement methods available are introduced. Relevant legislative and regulatory standards are introduced.

Guidelines on how to establish an environmental management system are provided.

Course objectives

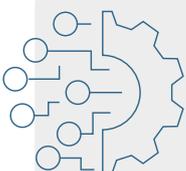
Provide the participants with a general overview of the subject of environmental management of a diesel power plant.

The participants will be introduced to the most important sources of environmental impact and to the implementation of environmental initiatives.

Syllabus

- Environmental legislation
- Environmental impact from a diesel power plant
- Emissions
- Oil and sludge
- Liquid effluent
- Solid waste
- Hazardous materials
- Noise
- Environmental management
- Introduction to ISO 14000

Details



Target group: Plant management and engineers

Tuition methods: Lectures, exercises and if possible (depending on the location) visit to a relevant plant

Course duration: 1 day



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About BWSC

Headquartered near Copenhagen, Denmark, BWSC provides specialized consultancy, engineering, installation, operation and maintenance services at power plants and green energy facilities worldwide.

Forty years of experience with energy infrastructure, a diverse staff of seasoned experts, full technology independence and our big-picture approach make us uniquely able to help customers define their ambitions and reach them through expert design and continuous improvement of their facilities.