Why Attend

This course covers the construction, operation and controls of gas turbines giving participants the knowledge needed to operate, maintain and troubleshoot gas turbine systems. Participants will first learn about the gas turbine cycle and will then dive deeper into construction, operation and maintenance techniques.

Topics discussed will include the operation and maintenance of the air inlet and filtration system, the pulse cleaning system and the evaporative cooler. It will also include the various operations of the turbine control panel, the operator mode commands and the operation of the protection systems.

Participants will gain an understanding of all the different components of a turbine necessary for the operation, maintenance and troubleshooting of gas turbines.

Course Methodology

This course will be highly interactive and include group discussions, case studies and syndicate work. It will include practical exercises that will allow all participants to use the knowledge they gained to demonstrate their skills in operating, maintaining and troubleshooting gas turbine systems.

Course Objectives

By the end of the course, participants will be able to:

- Describe the different stages involved in the operation of a gas turbine cycle
- Operate and maintain the air inlet, the filtration system, the pulse cleaning system and the evaporative cooler
- Demonstrate an understanding of the compressor section to include the rotor, variable guide vanes and compressor blading
- Use the relevant turbine control terms to operate and control protection systems
- Explain the construction and operation of the turbine section, including rotor, buckets, nozzles and bearings
- Outline the construction and operation of the liquid and gas fuel control systems, gas control valves and the lube oil system, essential to the operation, maintenance and troubleshooting of a gas turbine
- Describe the construction and the theory behind operation of a generator, including the starting system, the turning gear, the commutated inverter and the cooling methods

Target Audience

This course covers the fundamental skills for gas turbine operation personnel and maintenance personnel, including gas turbine operators, gas turbine maintenance technicians, and controls technicians. It will also be beneficial for professionals managing and supervising personnel involved in the operation and maintenance of gas turbines.

Target Competencies

- Gas turbines construction
- Gas turbines operation
- Gas turbines maintenance
- Gas turbines troubleshooting
- Fuel control systems operation
- Plant operations and controls
- Mechanical engineering

Course Outline

- Gas turbine theory
  - Gas turbine operation cycle
  - Air inlet system
  - Compressor system
  - Combustion system
  - Gas path
  - Exhaust system
  - Support systems
- Air inlet and filtration system
Air inlet and filtration system purpose
Air inlet and filtration system operation
Pulse cleaning operation
Pulse cleaning set points
Evaporative cooler

- Compressor section
  - The compressor
  - The rotor
  - Variable input guide valves
  - The blading

- Combustion system
  - Combustion system purpose
  - Combustion system operation
  - Crossfire tubes
  - Spark plugs
  - Flame detectors

- Turbine section
  - Turbine construction
  - Turbine operation
  - Rotor cooling
  - Turbine buckets
  - Nozzles and bearings

- Support systems
  - Fuel control
  - Liquid fuel control
  - Gas fuel control
  - Control valves
  - Speed ratio and stop valve
  - Lubrication operations

- Generator
  - Theory of generator
  - Generator construction
  - Starting a generator
  - Turning gear
  - Commutated inverter
  - Cooling a generator

- Plant operations and controls
  - Control panel
  - Important terms
  - Operator commands
  - Controls to conduct
  - Trip oil
  - Over speed
  - Over temperature
  - Flame detection
  - Vibration detection
  - Combustion monitoring
Fees: US$ (including coffee breaks and a buffet lunch daily)

Per participant - 2019

Fees + VAT as applicable

US$ 4800

UAE Tax Registration Number 100239834300003
## Courses in Engineering and Instrumentation

<table>
<thead>
<tr>
<th>Dates</th>
<th>Course Name</th>
<th>Language</th>
<th>Location</th>
<th>Fees</th>
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<tbody>
<tr>
<td>1 - 5 Dec, 2019</td>
<td>Mechanical Engineering for Non-Mechanical Engineers PLUS</td>
<td>English</td>
<td>Dubai</td>
<td>US$ 4800</td>
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Contents are subject to change. For the latest updates visit [www.meirc.com](http://www.meirc.com)
**Meirc Timeline**

- **2018**: Meirc celebrates its 60th anniversary
- **2015**: Meirc relocates to its newly acquired HQ office in Bay Square, Business Bay, Dubai
- **2014**: Meirc adds PLUS Specialty Training, a new division providing technical and industry-specific courses
- **2007**: Meirc opens an office in Jeddah, Saudi Arabia
- **2004**: Meirc opens an office in Abu Dhabi, UAE
- **1997**: Meirc is the 1st training company in the region to have its own website
- **1991**: Meirc becomes headquartered in Dubai, UAE
- **1988**: Meirc celebrates its 30th anniversary with its advisory committee (Aramco, Bapco, KOC, QPC)
- **1967**: Meirc builds its own office building in Beirut
- **1958**: Meirc is founded in Beirut by the late Simon Siksek