



Steam Turbine Maintenance

ABOUT THE COURSE

Steam turbines represent one of the major integrity and safety risks for power generators and industry users. Failure to correctly monitor, inspect and maintain turbines can lead to catastrophic events and considerable losses. In order to make meaningful maintenance and refurbishment decisions, it is essential for the maintenance staff to be aware of the design parameters and considerations which form the basis of the repair scope. This 3 days course offers delegates a firm understanding of the construction and maintenance requirements of steam turbines (covering different designs). This course also looks at some of the more recent development in repair and refurbishment technologies which can offer a cost-effective alternative to conventional techniques.

WHO SHOULD ATTEND

- Systems Engineers
- Maintenance Engineers
- Procurement Staff
- Maintenance Managers
- Engineering Managers
- Reliability Engineers
- Supervisors
- Asset Owners/Managers

MAIN LEARNING OBJECTIVES

- Review of major centre-line components of different design, their arrangements and associated maintenance requirements.
- Understand risks associated with HP, IP and LP Turbines rotors and casings.
- Familiar with common failure mechanism of turbo-generators.
- Overview industry best practice in inspection methods/techniques.
- Selecting the most optimal maintenance strategy.
- Learn how to effectively monitor and manage quality during outages (on-site and off-site work).
- Developing requirements and specifications for sub-contracted work.
- Enhanced decision-making ability in a constrained environment (risk-based decision) taking financial and time impact into consideration.
- Learning about latest technologies options for ease of steam turbine maintenance.
- Learning about global maintenance practices (Case Study).

DURATION, PREPARATION & MATERIAL

This is a 3-day course that will include practical exercises and an assessment. Copies of the programme materials will be provided and delegates will receive a certificate of attendance upon successful programme completion.

PROGRAMME CONTENT

Day 1

- The business context – cost benefit.
- Steam Power Cycle.
- Turbine centre-line constructions and its associated parts.
- HP turbine rotors and casings.
- IP turbine rotors and casings.
- LP turbine rotors and casings.
- Inspection Scopes determination based on operating history.
 - Past Service Reports.
 - Scope Development.

Day 2

- Common Failure mechanism affecting the availability of the plants.
 - Creep.
 - Fatigue.
 - Stress Corrosion Cracking (SCC).
 - Solid Particle Erosion (SPE).
 - Steam Erosion.
- Determination of intervention points during refurbishment process.
- Inspection prior to accepting the components for use/assembly.
- Refurbishment vs replacement.
- When to consider replacement of a component.

Day 3

- Case Studies.
- Methods of Damage assessment.
 - Creep damage assessment and possible solutions based on findings.
 - SCC damage assessment and possible solutions based on findings.
- NDT Techniques.
- Shrunk-on disc rotors inspection strategy.
- Casing repair methods.

ASSESSMENT & CERTIFICATION

Assessment: End-of-course examination.

Certification: Certificate awarded on successful completion of the course.

