

**Location:** Customer premises  
**Participants:** 20 people  
**Duration:** from 1 day up to 2 weeks

## TRAINING COURSES AND SEMINARS PORTFOLIO



As part of the Work Force Skills Enhancement services, MACH10 provides Customized Training and Coaching programs about Rotating Equipment and RAM Analysis.

Courses are presented by senior trainers with more than 30 yrs of experience in design and operating, and are composed by theoretical sessions, practical exercises and workshops.

### DESIGN AND APPLICATIONS OF ROTATING EQUIPMENT



#### **SUBJECT**

Application, selection, and design of compressors, gas turbines, pumps, seals, drivers and condition monitoring equipment used in Oil and Gas Industry.

#### **OBJECTIVES**

To provide an in-depth knowledge and understanding of the various rotating equipment technologies used in the industry, including, but not limited to:

- principles of design, selection, application and operation.
- limits of the respective operating windows,
- safety, safeguarding, condition monitoring and control aspects

## MAINTENANCE AND OPERATION OF ROTATING EQUIPMENT



### **SUBJECT**

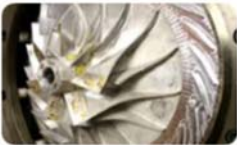
Maintenance and operating practices of compressors, gas turbines, pumps, and drivers used in Oil and Gas Industry.

### **OBJECTIVES**

To provide an in-depth knowledge and understanding of:

- operating principles
- limits of the respective operating windows
- safety, safe guarding and condition monitoring aspects
- routine and condition based maintenance requirements
- failure analysis of rotating equipment and components

## FAILURE DIAGNOSIS AND PREVENTION



### **SUBJECT**

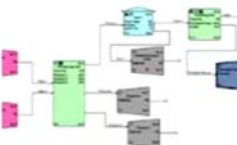
To identify the correct remedial steps, in order to prevent machinery component failures, thereby providing more efficient plant maintenance, increased operational efficiency, lower operating costs and improved plant availability.

### **OBJECTIVES**

The aim of the course is to enable participants to:

- familiarize with the use of root cause analysis as part of the overall diagnostic process
- be able to recognize key features on failed components taken mainly from rotating equipment and machinery parts
- make judgements about the cause of failure, and to identify the correct remedial steps required to prevent such failures occurring again

## RELIABILITY ANALYSIS AND MODELLING



### **SUBJECT**

RAM analysis modelling, its structured process to mathematically simulate the stochastic performance of plant, input selection, outcomes interpretation and possible sensitive cases.

### **OBJECTIVES**

The aim of the course is to enable participants to:

- effectively prescribe, audit and utilize externally conducted RAM studies
- utilize RAM studies to optimize asset design so as to achieve the overall project objectives at lowest capital or life-cycle costs
- reduce the overall cost of conducting externally performed RAM studies
- apply RAM technology approach and reframe “if-then” problems to predictive problems

## SEMINAR ON IN-TANK CRYOGENIC PUMPS FOR LNG APPLICATIONS



### **SUBJECT**

In-Tank Cryogenic pumps are very much a niche product, which is commonly found in LNG and regasification plants. Given the unusual operating environment, these pumps have special design criteria and standards.

Selecting an in-tank cryogenic pump requires specific knowledge and training, especially if the rotating equipment staff has to deal with this type of equipment selection only occasionally.

### **OBJECTIVES**

The training will be in the form of a 1-day seminar and will be carried out at Customer's premises, to provide an in-depth knowledge and understanding of:

- In-Tank Cryogenic Pump overview
- History – Main steps of design development
- Construction features
- Rotordynamic behaviour
- Selection Criteria and Operability
- Installation
- Maintainability and Reliability
- Excursus about Hydraulic Turbines
- Testing (FAT and SAT)
- Main operating issues

The training can be delivered to up to 15 people. The recommended background is the following:

- Rotating equipment / mechanical engineers (5-20 years experience)
- Process engineers (5-10 years experience)

To request a quotation, please contact:

Mr. Stefano Bisson

Mob: +39 392 4029971

Email: [stefano.bisson@mach10ltd.com](mailto:stefano.bisson@mach10ltd.com)