



# **MUE134**

## **FANS and BLOWERS:**

### **Performance, Measurements & Maintenance**

## Course Introduction:

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The course is devoted to design features, efficiencies, operating characteristics, reliability and maintenance implications of fans and Blower. Topics include terminology, component operation, and testing and repair of. Upon completion, students should be able to assess manufacturer Specifications, and test instruments to determine proper system operation.

## Course Objectives:

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**Upon successful completion of this course, the delegates will be able to:**

- ✓ Gain a thorough understanding of the various fans and blowers configurations available to virtually every industrial user
- ✓ Identify mechanical designs of fans and blowers and the basic performance parameters
- ✓ Differentiate between preventive and predictive maintenance techniques
- ✓ Operate and employ performance testing
- ✓ Carryout troubleshooting during operation

## Who Should Attend?

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This application and component course is intended to be of direct use by persons in staff (senior technicians, operators, supervisors, superintendents) and corporate engineering.

## Course Outline:

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### Day 1:

#### **Introduction to Fans and Blowers Types**

- Centrifugal
- Axial
- Mixed Flow
- Ranges of Application and Limitations

#### **Mechanical Design of Fans and Blowers**

- Rotors
- Balancing
- Rotor Dynamics
- Impellers
- Casings
- Bearings
- Seals

- Couplings
- Controls

### **Day 2:**

#### **Basic Performance Parameters**

- Thermodynamics
- Capacity
- Power
- Efficiencies
- Gas properties

### **Day 3:**

#### **Predictive vs. Preventive Maintenance Techniques**

- Determination of Which Method to Use
- Reliability Impact on Plants
- Definition of Maintenance & Reliability
- General Issue affecting Maintenance & Reliability

### **Day 4:**

#### **Operation and Performance Testing**

- Start-up & mechanical field tests
- Piping
- Instrumentation
- Calculation procedure & sample calculations

### **Day 5:**

#### **Troubleshooting**

- Basic Bearing repairs
- Motor-Fan Alignment
- Vibration and Noise
- Cleaning axial & centrifugal fans
- Inspection of fans and blowers
- Maintenance check list & trouble shooting guide
- Case Study

## Course Certificate:

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**International Center for Training & Development (ICTD)** will award an internationally recognized certificate(s) for each delegate on completion of training.

## Course Methodology:

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**A variety of methodologies will be used during the course that includes:**

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionnaires
- Group Work
- Discussion
- Presentation

## Course Fees:

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**To be advised as per the course location.** This rate includes participant's manual, and-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

## Course Timings:

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### Daily Course Timings:

08:00 - 08:20	Morning Coffee/Tea
08:20 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:30	Recess (Coffee/Tea/Snacks)
13:30 - 15:00	Last Session