

Course Overview:

This advanced-level course equips engineering professionals with critical expertise in mechanical measurements and sealing systems, essential for optimizing equipment reliability and performance in high-demand industries. Addressing both measurement precision and sealing integrity, the course ensures participants gain practical insights applicable to real-world systems. It's designed to support professionals who are involved in maintaining complex machinery, reducing operational downtime, and ensuring compliance with global standards.

Course Objective:

- Apply advanced mechanical measurement techniques with precision and accuracy.
- Analyze and interpret performance data for system optimization.
- Design and maintain sealing systems suitable for extreme conditions.
- Diagnose faults and apply best practices in sealing system maintenance.
- Ensure compliance with international measurement and sealing standards.

Course Outline:**Module 1: Fundamentals of Mechanical Measurements**

- Measurement systems overview
- Principles of precision, accuracy, and repeatability
- Minimizing common measurement errors

Module 2: Calibration and Standards

- Calibration techniques for instruments
- International measurement standards
- Traceability and documentation

Module 3: Advanced Measurement Techniques

- Non-contact methods (laser, ultrasonic)
- Vibration analysis in mechanical systems
- Data acquisition using modern tools

Module 4: Sealing Systems Design

- Types and applications of seals
- Material selection for extreme environments
- Designing for corrosive and abrasive conditions

Module 5: Maintenance and Troubleshooting of Sealing Systems

- Failure modes in sealing systems
- Preventive and predictive maintenance
- Case-based troubleshooting

Module 6: Integration of Measurements and Sealing Systems

- Role of measurement in seal performance
- Sensor integration for real-time monitoring
- System-level optimization strategies

Module 7: Performance Benchmarking and Optimization

- Key performance indicators for systems
- Benchmarking methods for seals and instruments
- Continuous improvement using performance data

Module 8: Practical Applications and Case Studies

- Real-world challenges and solutions

Training Language:

English/Arabic

Training Methodology:

The course combines various teaching methods, including instructor-led presentations, group discussions, case study analyses, and assessments through quizzes and a final exam to engage participants and ensure they understand and retain the material.

Venue | Date | Fees

Riyadh | 17-08-2025 | 17,250 SAR

Riyadh | 14-09-2025 | 17,250 SAR

Jubail | 21-12-2025 | 17,250 SAR

- Calibration exercises for measurement tools

- Case studies in seal installation

Module 9: Data-Driven Decision Making

- Utilizing performance data for maintenance planning

- Decision-making frameworks in system improvements

- Aligning measurement data with business objectives

Module 10: Compliance and Best Practices

- Adhering to global engineering standards

- Best practices in measurement and sealing

- Audit preparation and documentation control

Who Should Attend:

- Senior Mechanical Engineers

- Maintenance Managers

- Design and Process Engineers

- Quality Control Specialists