

Fundamentals of Mechanical Technology: Principles & Practice

11 – 15 October 2027
Barcelona (Spain)

UK Training

PARTNER



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Ref: 3270_154467 **Date:** 11 – 15 October 2027 **Location:** Barcelona (Spain) **Fees:** 5900 GBP

Why This Course

In today's rapidly advancing industrial landscape, understanding the fundamentals of mechanical technology is essential for engineers, technicians, and professionals seeking to build or strengthen their technical expertise.

Mechanical Technology Fundamentals provides a comprehensive introduction to the principles, processes, and tools that underpin modern mechanical engineering — from materials science and design to manufacturing and applied systems.

This 5-day program combines theoretical learning with hands-on application to help participants bridge the gap between engineering concepts and real-world practice. By mastering mechanical principles and gaining exposure to essential technologies, participants will develop the confidence and capability to contribute effectively to engineering and manufacturing projects.

What You'll Learn and Practice

By joining this program, you will:

- Understand the fundamental principles of mechanics and their real-world applications.
- Analyze material properties and select suitable materials for engineering designs.
- Apply key design principles and develop proficiency in CAD tools.
- Comprehend manufacturing processes and their impact on product functionality and quality.
- Strengthen analytical and problem-solving skills in mechanical engineering contexts.

The Program Flow

Day 1: Introduction to Mechanical Principles

- Fundamentals of statics and dynamics.
- Force systems, equilibrium, and motion analysis.
- Kinematics and kinetics in mechanical systems.
- Energy, work, and momentum principles in engineering applications.
- Practical session: Solving real-world mechanical system problems.

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Day 2: Materials Science and Properties

- Classification and internal structure of engineering materials.
- Mechanical, thermal, and electrical properties of materials.
- Material selection criteria for performance and cost-effectiveness.
- Testing and characterization methods for material evaluation.
- Workshop: Selecting materials for specific design requirements.

Day 3: Design Fundamentals and CAD

- Engineering drawing standards and design documentation.
- Introduction to Computer-Aided Design CAD software.
- 2D drafting and 3D modeling techniques.
- Design for manufacturability and product optimization.
- Practical exercise: Creating a basic CAD design project.

Day 4: Manufacturing Processes

- Overview of traditional and modern manufacturing methods.
- Machining processes and tooling fundamentals.
- Forming, shaping, and joining techniques.
- Additive manufacturing 3D printing and emerging technologies.
- Workshop: Process selection for design efficiency.

Day 5: Applied Mechanical Systems

- Fundamentals of mechanical power transmission.
- Fluid power systems: hydraulics and pneumatics.
- Basics of thermal systems and heat transfer.
- Introduction to mechatronics and system integration.
- Case study: Designing an integrated mechanical system.

Individual Impact

- Gain a solid foundation in mechanical technology concepts and applications.
- Enhance proficiency in CAD tools and design visualization.
- Improve analytical and decision-making skills for engineering challenges.
- Build confidence in handling multidisciplinary mechanical systems.

Organizational Impact

- Develop technically competent professionals with a clear understanding of mechanical systems.
- Improve design efficiency and product quality through better material and process selection.
- Strengthen innovation and problem-solving capabilities within engineering teams.
- Enhance collaboration between design, manufacturing, and maintenance functions.

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Training Methodology

This course integrates interactive lectures, hands-on workshops, and case-based learning to ensure deep understanding and skill acquisition.

Participants will engage in:

- Real-world engineering problem-solving sessions.
- Practical CAD modeling and design exercises.
- Group discussions on material and process optimization.
- Applied simulations and mini-projects.

Beyond the Course

Upon completion, participants will be equipped with a well-rounded understanding of mechanical technology fundamentals — enabling them to design, analyze, and optimize mechanical systems with confidence.

Graduates will leave with practical experience, a stronger engineering foundation, and enhanced readiness for advanced technical roles.

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A graphic illustration of a chessboard with several chess pieces. A large gold king piece is prominent in the foreground, with a silver pawn and a silver knight nearby. The board is checkered, and there are concentric circles in the background.