Mechanical Fundamentals

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This five-day course provides participants with a working knowledge of blueprints and mechanical drawings, measuring devices, hydraulics, pneumatics, mechanical drive systems, fasteners, and bearings.

I. Blueprints and Mechanical Drawings

- Blueprints
- Mechanical Drawing Views
- Arrangement of Views
- Thread Dimensioning
- Tapered & Machined Surface Dimensioning
- P&ID Drawings

II. Mechanical Measuring Devices

- Rules
- Calipers
- Micrometers
- Dial Indicators

III. Hydraulics

- Hydraulic Theory
- System Components
- Hydraulic Symbols
- System/Circuit Troubleshooting

IV. Pneumatics

- Pneumatic Theory
- System Components
- Pneumatic Symbols
- System/Circuit Troubleshooting

V. Mechanical Drive Systems

- Belts
- Chain Drives
- Gear Systems
- Conveyors

VI. Fasteners

- Classes of Fit
- Mechanical Properties
- Fastener Materials
- Torque and Tension
- Tightening Methods
- Measuring Fastener Torque
- Overview of Bolted Joints

VII. Bearings

- Bearing Design and Construction
- Bearing Types
- Bearing Lubrication
- Bearing Inspections
- Bearing Removal
- Overview of Journal Bearings
- Bearing Care
- Bearing Failure Analysis