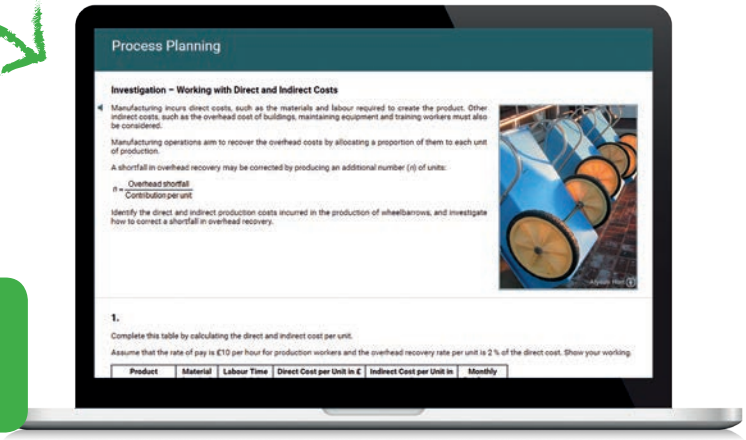
LEARNING WITH OXFORD

Basic Manufacturing Technology
Engineering

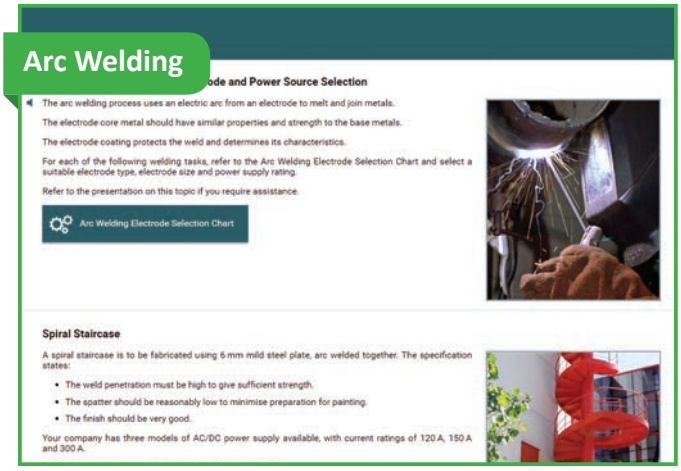
Learn where you want - when you want...

Online lessons that include that include theory presentations, exciting investigation activities and assessment quizzes.

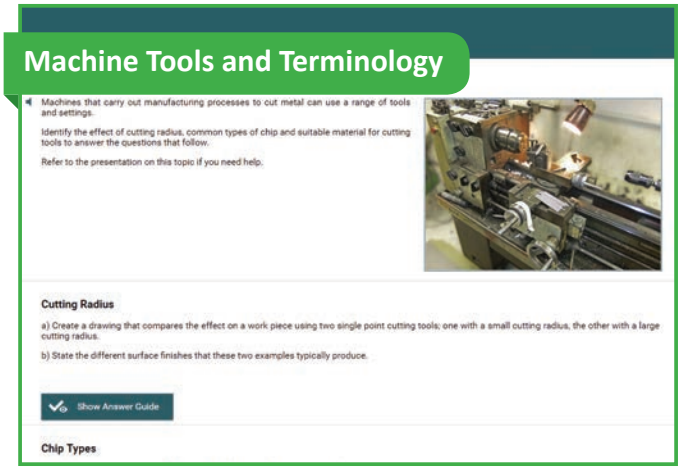


Basic Manufacturing Technology - Lesson Examples:

Arc Welding



Machine Tools and Terminology



Our tried and tested online learning sequence has been successful around the world:

Lesson presentation (audio and video)

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Interactive investigation and challenge

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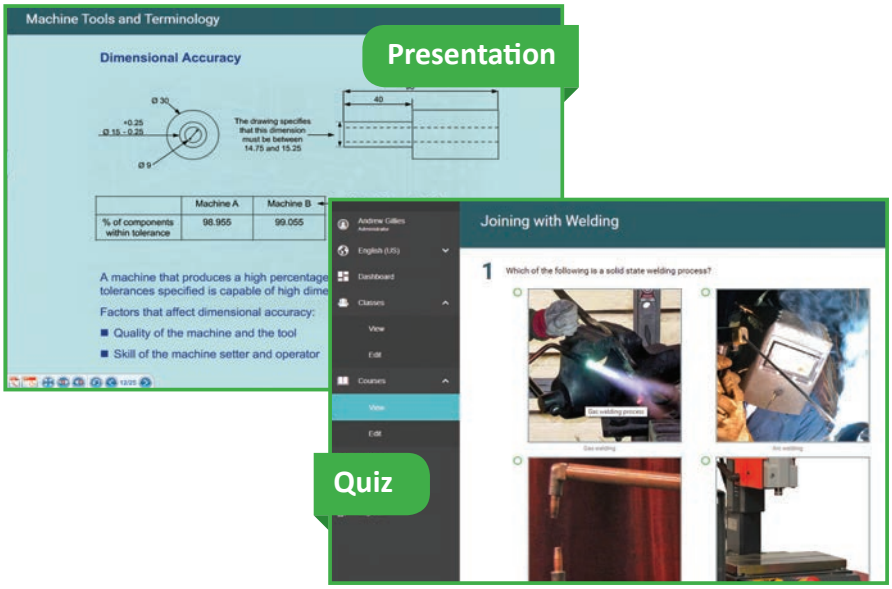
Short quiz and instant feedback



Engineering Science
- Calculating Work, Power and Efficiency
- Energy, Work and Efficiency
- Mass and Volume Flow Rate
- Material Conversion
- Mechanical Units
- Stress Calculations in Joints
- Stress-Strain Analysis
- Torque and Power
- Transferring Mechanical Energy
- Measuring with a Caliper, Micrometer, or Dial Gauge

Engineering Materials
- Classification of Materials
- Characteristics of Materials
- Iron and Steel
- Non-Ferrous Metals
- Polymers
- Ceramic and Sintered Materials
- Composite Materials
- Corrosion
- Materials Testing - Hardness and Non-Destructive Testing
- Materials Testing - Tensile and Impact Testing
- Interpretation of Test Results

Engineering Drawing
- Basic Geometric Construction
- Co-ordinate Systems
- Types of View
- Drawing Standards
- Drawing Analysis
- Sectional Views
- Dimensions
- Drilling and Finishes
- Fluid Power Diagrams
- Machine Elements
- Permanent Connections
- Screws and Threaded Components
- Tolerances and Fits
- Roughness

Joining
- Joining Procedures
- Screw Connections
- Joining with Glues
- Joining with Soldering
- Joining with Keys and Splines
- Joining with Pins, Bolts and Rivets
- Lapping
- Joining with Threads
- Forces on Threads
- Forces in Threaded Joints
- Formula and Calculation of Tightening Torque

Manufacturing Processes
- Manufacturing Processes
- Safety and Protective Measures
- Machine Tools and Terminology
- Primary Metal Shaping Processes
- Cutting Metal
- Turning - Processes and Machines
- Determining Data for Turning
- Milling - Processes and Machines
- Determining Data for Milling
- Grinding - Processes and Machines
- Determining Data for Grinding
- Forces on the Cutting Tool
- Cutting and Angles of Cutting
- Cutting Speed for Drilling
- Bending
- Bending Operation Calculations
- Forming Procedures
- Forming Calculations
- Forming - Material Use and Scrap
- Forging
- Honing
- Erosive Manufacturing Processes
- Spark Erosion
- Hard Metal Cutting
- Finishing Processes
- Environmental Protection
- Reading Machine Diagrams

Welding
- Joining with Welding
- Gas Welding
- Arc Welding
- Gas-Shielded Welding
- Welding Seam Profile and Electrode Requirements

CNC Programming
- CNC and the Basics of Programming
- CNC Programming for Turning
- CNC Programming for Milling
- Multiple Axis Turning and Milling