

Mechanical Manufacturing Engineering

Level 3

Awarded by **EMTA Awards Limited**

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Standards

This SVQ is based on standards developed by the Engineering and Marine Training Authority NTO. The Engineering and Marine Training Authority NTO represents a wide variety of people working in a broad range of occupations within the engineering sector.

Please note that the body responsible for developing the standards on which the SVQ is based may alter owing to the emergence of the Sector Skills Councils network. For details on Sector Skills Councils please contact the SQA Accreditation Unit or see [SSC Information](#).

Structure of the SVQ

The way the SVQ is made up is shown below. The unit title appears in bold and the elements that make up each unit are listed under the unit title.

Mandatory units

Candidates must complete all of these units:

Complying with Statutory Regulations and Organisational Safety Requirements

- 1 Complying with statutory regulations and organisational safety requirements

Using and Interpreting Engineering Drawings and Documents

- 1 Using and interpreting engineering drawings and documents

Working Efficiently and Effectively in Engineering

- 1 Working efficiently and effectively in engineering

Optional units

Candidates must complete one pathway.

Machining

Candidates must also complete **One Pair** of the following units, in addition to the mandatory units:

Setting Centre Lathes for Production

- 1 Setting centre lathes for production

Machining Components Using Centre Lathes

- 1 Machining components using centre lathes

Setting Turret Lathes for Production

- 1 Setting turret lathes for production

Machining Components Using Turret Lathes

- 1 Machining components using turret lathes

Setting Milling Machines for Production

- 1 Setting milling machines for production

Machining Components Using Milling Machines

- 1 Machining components using milling machines

Setting Shaping, Planing or Slotting Machines for Production

- 1 Setting shaping, planing or slotting machines for production

Machining Components Using Shaping, Planing and Slotting Machines

- 1 Machining components using shaping, planing and slotting machines

Setting Gear Cutting Machines for Production

- 1 Setting gear cutting machines for production

Machining Components Using Gear Cutting Machines

- 1 Machining components using gear cutting machines

Setting Gear Grinding Machines for Production

- 1 Setting gear grinding machines for production

Machining Components Using Gear Grinding Machines

- 1 Machining components using gear grinding machines

Setting Horizontal Boring Machines for Production

- 1 Setting horizontal boring machines for production

Machining Components Using Horizontal Boring Machines

- 1 Machining components using horizontal boring machines

Setting Vertical Boring Machines for Production

- 1 Setting vertical boring machines for production

Machining Components Using Vertical Boring Machines

- 1 Machining components using vertical boring machines

Setting Electro Discharge Machines for Production

- 1 Setting electro discharge machines for production

Machining Components Using Electro Discharge Machines

- 1 Machining components using electro discharge machines

Setting Grinding Machines for Production

- 1 Setting grinding machines for production

Machining Components Using Grinding Machines

- 1 Machining components using grinding machines

Setting Honing and Lapping Machines for Production

- 1 Setting honing and lapping machines for production

Machining Components Using Honing and Lapping Machines

- 1 Machining components using honing and lapping machines

Setting Broaching Machines for Production

- 1 Setting broaching machines for production

Machining Components Using Broaching Machines

- 1 Machining components using broaching machines

Setting Metal Spinning Machines for Production

- 1 Setting metal spinning machines for production

Producing Components Using Metal Spinning Machines

- 1 Producing components using metal spinning machines

NC/CNC Machining

Candidates must also complete **One** of the following units, in addition to the mandatory units:

Loading and Proving NC/CNC Machine Tool Programmes

- 1 Loading and proving NC/CNC machine tool programmes

Carrying Out CNC Machine Tool Programming

- 1 Carrying out CNC machine tool programming

Candidates must also complete **One pair** of the following units, in addition to the mandatory units:

Setting NC/CNC Turning Machines for Production

1 Setting NC/CNC turning machines for production

Machining Components Using NC/CNC Turning Machines

1 Machining components using NC/CNC turning machines

Setting NC/CNC Milling Machines for Production

1 Setting NC/CNC milling machines for production

Machining Components Using NC/CNC Milling Machines

1 Machining components using NC/CNC milling machines

Setting NC/CNC Grinding Machines for Production

1 Setting NC/CNC grinding machines for production

Machining Components Using NC/CNC Grinding Machines

1 Machining components using NC/CNC grinding machines

Setting NC/CNC Punching Machines for Production

1 Setting NC/CNC punching machines for production

Machining Components Using NC/CNC Punching Machines

1 Machining components using NC/CNC punching machines

Setting NC/CNC Laser Profiling Machines for Production

1 Setting NC/CNC laser profiling machines for production

Machining Components Using NC/CNC Laser Profiling Machines

1 Machining components using NC/CNC laser profiling machines

Setting NC/CNC Electro Discharge Machines for Production

1 Setting NC/CNC electro discharge machines for production

Machining Components Using NC/CNC Electro Discharge Machines

1 Machining components using NC/CNC electro discharge machines

Setting NC/CNC Vertical Boring Machines for Production

1 Setting NC/CNC vertical boring machines for production

Machining Components Using NC/CNC Vertical Boring Machines

1 Machining components using NC/CNC vertical boring machines

Setting NC/CNC Horizontal Boring Machines for Production

1 Setting NC/CNC horizontal boring machines for production

Machining Components Using NC/CNC Horizontal Boring Machines

1 Machining components using NC/CNC horizontal boring machines

Setting NC/CNC Gear Cutting Machines for Production

- 1 Setting NC/CNC gear cutting machines for production

Machining Components Using NC/CNC Gear Cutting Machines

- 1 Machining components using NC/CNC gear cutting machines

Setting NC/CNC Machining Centres for Production

- 1 Setting NC/CNC machining centres for production

Machining Components Using NC/CNC Machining Centres

- 1 Machining components using NC/CNC machining centres

Machine Tool Setting

Candidates must also complete the following unit, in addition to the mandatory units:

Handling Over Machine Tools to Production Operators

- 1 Handling over machine tools to production operators

Candidates must also complete **One** of the following units, in addition to the mandatory units:

Setting Capstan and Turret Lathes for Production

- 1 Setting capstan and turret lathes for production

Setting Single-Spindle Automatic Turning Machines for Production

- 1 Setting single-spindle automatic turning machines for production

Setting Multi-Spindle Automatic Turning Machines for Production

- 1 Setting multi-spindle automatic turning machines for production

Setting Single and Multi-Spindle Drilling Machines for Production

- 1 Setting single and multi-spindle drilling machines for production

Setting Tool and Cutter Grinding Machines for Production

- 1 Setting tool and cutter grinding machines for production

Setting Special-Purpose Machines for Production

- 1 Setting special-purpose machines for production

Setting Power Presses for Production

- 1 Setting power presses for production

Setting Milling Machines for Production

- 1 Setting milling machines for production

Setting Grinding Machines for Production

- 1 Setting grinding machines for production

Setting Shaping, Planing or Slotting Machines for Production

- 1 Setting shaping, planing or slotting machines for production

Setting Gear Cutting Machines for Production

1 Setting gear cutting machines for production

Setting Gear Grinding Machines for Production

1 Setting gear grinding machines for production

Setting Electro Discharge Machines for Production

1 Setting electro discharge machines for production

Setting Grinding Machines for Production

1 Setting grinding machines for production

Setting Honing and Lapping Machines for Production

1 Setting Honing and Lapping Machines for Production

Setting Broaching Machines for Production

1 Setting broaching machines for production

Setting NC/CNC Turning Machines for Production

1 Setting NC/CNC turning machines for production

Setting NC/CNC Milling Machines for Production

1 Setting NC/CNC milling machines for production

Setting NC/CNC Grinding Machines for Production

1 Setting NC/CNC grinding machines for production

Setting NC/CNC Punching Machines for Production

1 Setting NC/CNC punching machines for production

Setting NC/CNC Laser Profiling Machines form Production

1 Setting NC/CNC laser profiling machines form production

Setting NC/CNC Electro Discharge Machines for Production

1 Setting NC/CNC electro discharge machines for production

Setting NC/CNC Gear Cutting Machines for Production

1 Setting NC/CNC gear cutting machines for production

Setting NC/CNC Machining Centres for Production

1 Setting NC/CNC machining centres for production

Machine Tool Setting

Candidates must complete **Three** of the following units, in addition to the mandatory units:

Producing Components Using Hand Fitting Techniques

1 Producing components using hand fitting techniques

Assembling Mechanical Products

1 Assembling mechanical products

Producing Components by Manual Machining

1 Producing components by manual machining

Fitting Fluid Power Components to Mechanical Assemblies

- 1 Fitting fluid power components to mechanical assemblies

Fitting Pipework Systems to Mechanical Assemblies

- 1 Fitting pipework systems to mechanical assemblies

Fitting Electrical/Electronic Components to Mechanical Assemblies

- 1 Fitting electrical/electronic components to mechanical assemblies

Producing Power Turbine Combustion Assemblies

- 1 Producing power turbine combustion assemblies

Producing Power Turbine Compressor Assemblies

- 1 Producing power turbine compressor assemblies

Producing Turbine Assemblies

- 1 Producing turbine assemblies

Producing Power Turbine Gearbox Assemblies

- 1 Producing power turbine gearbox assemblies

Producing Power Turbine Major Assemblies

- 1 Producing power turbine major assemblies

Producing Piston Engine Assemblies

- 1 Producing piston engine assemblies

Repairing and Modifying Mechanical Assemblies

- 1 Repairing and modifying mechanical assemblies

Checking Completed Assemblies Comply with Specification

- 1 Checking completed assemblies comply with specification

Machine Tool Setting

Candidates must complete ONE of the following units, in addition to the mandatory units

Pipe Bending and Forming by Hand Methods

- 1 Pipe bending and forming by hand methods

Pipe Bending and Forming Using Bending Machines

- 1 Pipe bending and forming using bending machines

Candidates must also complete TWO of the following units, in addition to the mandatory units

Assembling Screwed Pipework

- 1 Assembling screwed pipework

Assembling Small Bore Non-Ferrous Pipework

- 1 Assembling small bore non-ferrous pipework

Assembling Non-Metallic Pipework

- 1 Assembling non-metallic pipework

Preparing and Testing Pipework Systems

- 1 Preparing and testing pipework systems

Producing Socket and Flange Fillet Welded Joints in Pipe Using a Manual Welding Process

- 1 Producing socket and flange fillet welded joints in pipe using a manual welding process

Composite Manufacture/Polymer Engineering

Candidates must complete **ONE** of the following units, in addition to the mandatory units

Producing Composite Mouldings Using Pre-Preg Laminating Techniques

- 1 Producing composite mouldings using pre-preg laminating techniques

Producing Composite Mouldings Using Wet Lay-Up Techniques

- 1 **Producing composite mouldings using wet lay-up techniques**

Producing Composite Assemblies

- 1 Producing composite assemblies

Candidates must also complete **one** of the following units, in addition to the mandatory units (Note: Two different units must be selected):

Producing Composite Mouldings Using Pre-Preg Laminating Techniques

- 1 Producing composite mouldings using pre-preg laminating techniques

Producing Composite Mouldings Using Wet Lay-Up Techniques

- 1 Producing composite mouldings using wet lay-up techniques

Producing Composite Assemblies

- 1 Producing composite assemblies

Bonding Composite Mouldings

- 1 Bonding composite mouldings

Repairing Composite Mouldings

- 1 Repairing composite mouldings

Applying Finishes to Composite Mouldings

- 1 Applying finishes to composite mouldings

Trimming Composite Mouldings Using Hand Tools

- 1 Trimming composite mouldings using hand tools

Identifying Defects in Composite Mouldings

- 1 Identifying defects in composite mouldings

Optical Engineering

Candidates must complete **this** unit, in addition to the mandatory units

Inspecting Optical Components

- 1 Inspecting optical components

Candidates must complete **four** of the following units, in addition to the mandatory units

Machining Infra-red/Special Material Lenses

- 1 Machining infra-red/special material lenses

Machining Optical Glass Lenses

- 1 Machining optical glass lenses

Machining Optical Prism and Flat Components

- 1 Machining optical prism and flat components

Setting CNC Aspheric Glass and Diamond Turning Machines

- 1 Setting CNC aspheric glass and diamond turning machines

Machining Components Using CNC Aspheric Glass and Diamond Turning Machines

- 1 Machining components using CNC aspheric glass and diamond turning machines

Setting NC/CNC Optical Grinding and Polishing Machines for Production

- 1 Setting NC/CNC optical grinding and polishing machines for production

Machining Components Using NC/CNC Optical Grinding and Polishing Machines

- 1 Machining components using NC/CNC optical grinding and polishing machines

Machining Optical Cylinders and Domes

- 1 Machining optical cylinders and domes

Vacuum Coating Optical Materials

- 1 Vacuum coating optical materials

Machining Optical Plastic Components

- 1 Machining optical plastic components

There may be publications available to support this SVQ. For more information, please contact

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