

CORE OBJECTIVES (MCL)

1. Mechanical Engineering Fundamentals	Code	ES initials and Date of Assessment			
		G	K	E	C
1.1 Common Engineering Metallic and Non Metallic Materials - Types - Properties - Material Specifications - Uses - Special Treatments (e.g. Heat) - Surface Coatings / Finishing	C				
1.2 Materials Shaping (a) Traditional Methods - Turning - Milling - Grinding - Fitting - Drilling (b) Computer Aided Methods (CNC) - Turning Centres - Machining Centres - Jig Borers - Jig Grinders - Milling Machines	C/E*				
1.3 Materials Forming Processing (Manual & Computer Aided) - Related Processing Equipment (e.g. EDM) - Sheet Metal - Moulds & Die - Extrusion	C				
1.4 Materials Joining - Welding (hand & auto) - Brazing - Soldering - Mechanical Fastenings (Rivets, nuts & bolts)	C				
1.5 Operational Reliability - Planned Maintenance Procedures - Lubrication (Range, Uses & Additives) - Condition Health Monitoring	C				

* As appropriate to the company

CORE OBJECTIVES (MCL)

2. Engineering Design	Code	ES initials and Date of Assessment			
		G	K	E	C
2.1 Design Office Practice <ul style="list-style-type: none"> - Codes of Practice - Stages of Design - Use of Computer Packages - Specifications - Information Retrieval - Design Appreciation 	C				
2.2 Computer Aided Design (CAD)	C				
2.3 Design Aspects <ul style="list-style-type: none"> - Types, Selection and Applications of: <ul style="list-style-type: none"> (i) Bearings (ii) Sealing Devices (iii) Gearing - Types of Tolerances & Measurements - Cost Estimates - Customer Requirements/Specifications - Statutory Requirements 	C				
2.4 Synthesis <ul style="list-style-type: none"> - Selection of Units/components - Total Design considerations - Alternative Solutions 	C/E*				

* As appropriate to the company

CORE OBJECTIVES (MCL)

3. Operational Reliability	Code	ES initials and Date of Assessment			
		G	K	E	C
3.1 Industrial Automation - Automatic Control Systems & Units - Computer Aided Manufacture / Control - Flexible Manufacturing Systems	C/E*				
3.2 Installation Testing & Commissioning - Procedures - Preparation - Testing/Setting to work - Guarantees & Defects	C				
3.3 Instrumentation - Selection - Range and Accuracy - Performance Monitoring - Calibration	C				
3.4 Quality Procedures - Total Quality Management - International Standards - Quality Control/Quality Assurance	C/E*				
3.5 Maintenance - Types of Maintenance System - Computer Aided Maintenance Management - Diagnostic Techniques	C/E*				
3.6 Operation - Procedures - Supervision/Management	C				
* As appropriate to the company					

CORE OBJECTIVES (MCL)

4. Engineering Administration & Management	Code	ES initials and Date of Assessment			
		G	K	E	C
4.1 Interpretation, preparation and communication of:- - requirements - specifications - drawings	C				
4.2 Materials/equipment procurement procedures - Tender and / or contract appraisal and administration.	C				
4.3 Planning, Budgeting	C				
4.4 Estimating :- - labour - materials - installation - transport costs	C				
4.5 Project / Work scheduling and management - Management Information Services	C				
4.6 Preparation of Reports	C				
* As appropriate to the company					