

CORE OBJECTIVES (MNA)

| 1. Engineering Fundamentals | Code | ES initials and Date of Assessment | | | |
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| | | G | K | E | C |
| 1.1 Common Engineering Metallic and Non Metallic Materials - Types & Properties - Material Specifications & Applications - Special Treatments - Surface Coatings/Finishing | C | | | | |
| 1.2 Material Shaping Processes - Manual & Computer Aided Methods - Operational Parameters - Reliability Factors - Machine Accuracy & Product Quality | C/E* | | | | |
| 1.3 Material Forming Processes - Manual & Computer Aided Methods - Sheet Metal - Mould & Die - Extrusion | C | | | | |
| 1.4 Material Joining Processes - Welding, Brazing & Soldering - Mechanical Fastening | C | | | | |
| 1.5 Operational Reliability - Planned Maintenance Procedures - Lubrication - Condition Monitoring | C | | | | |
| 1.6 Engineering Design Fundamentals - Codes of Practice - Stages of Design - Specifications - Information Retrieval - Selection of Materials & Components - Cost Estimates - Total Design Considerations - Computer Aided Design | C/E* | | | | |
| * As appropriate to the company | | | | | |

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| 2. Engineering Analysis | Code | ES initials and Date of Assessment | | | |
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| | | G | K | E | C |
| 2.1 Definition of An Engineering Problem - Develop Skill in Identifying & Defining an Engineering Problem - Participate in Researching, Assembling & Assessing Useful Data - Record Involvement in the Quarterly Log Book to Demonstrate the Analytical Process in Defining a Problem | C | | | | |
| 2.2 Recommendation of Practical Solutions - Develop Experience in Identifying, Evaluating & Proposing Various Practical Solutions for a Problem - Assess Each Solution with Feasibility Study Involving : • Concepts & Precedents • Sources of Information • Budget Estimates & Quotations • Brief Design Methods • Environmental Considerations - Produce Feasibility Reports to discuss with the Engineering Supervisor | C | | | | |
| 2.3 Application of Standards - Develop Skill in Applying National & International Standards & Codes of Practice in Solving Problems - List the Applied Standards & discuss in the Quarterly Log Book their Relevance to the Identified Problem | C | | | | |
| 2.4 Decision on Final Solution - Develop Experience in Considering all the Relevant Information & Analytical Work as listed in 2.1, 2.2 & 2.3 as appropriate to the company - Produce Preferred Solution with Justification for Assessment by the Engineering Supervisor | C/E* | | | | |
| <i>* As appropriate to the company</i> | | | | | |

CORE OBJECTIVES (MNA)

| 3. Engineering Applications | Code | ES initials and Date of Assessment | | | |
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| | | G | K | E | C |
| 3.1 Performing Engineering Practices - Gain Competence in Performing the Common Engineering Activities in Relation to Maritime Machineries & Plants as appropriate to the company : • Manufacturing Processes • Design of Components, Products, System & Equipment • Inspection & Surveying • Testing & Commissioning • Operation & Maintenance - Record these activities in the Quarterly Log Book | C/E* | | | | |
| 3.2 Environmental Consideration - Develop Knowledge of Pollution and its Effect on Solution of a Problem as appropriate to the company - Cover this aspect in the Quarterly Log Book | C/E* | | | | |
| 3.3 Production of Specifications - Understand Technical Specifications as an Essential Part of a Project - Develop Knowledge & Skill in Selecting & Writing Specifications - Produce Specifications for a Project to discuss with the Engineering Supervisor | C/E* | | | | |
| <i>* As appropriate to the company</i> | | | | | |

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| | | G | K | E | C |
| <p>3.4 Preparation of Contracts</p> <ul style="list-style-type: none"> - Understand a Contract with respect to the Discrete Duties & Responsibilities of all the Parties involved - Understand the Facilities for the Issue, Receipt, Registration & Filing of Work Instructions & Drawings & their Amendments - Gain Experience in Using Drawings & Work Instructions to Control Dimensions, Accuracy & Quality | G | | | | |
| <p>3.5 Implementation of Quality Control</p> <ul style="list-style-type: none"> - Appreciate the Principles of Quality Control in Meeting the Required Specifications - Develop Skill to obtain Feedbacks in Monitoring the Progress of A Project - Develop Knowledge in Quality Control Methods - Record Involvement in the Quarterly Log Book to Demonstrate the Implementation of Quality Control | C/E* | | | | |
| <p>3.6 Implementation of Safety At Work</p> <ul style="list-style-type: none"> - Understand the Importance of Safety at Work - Develop Good Safety Practice - Emphasize responsibility of Every Team Member in Creating a Safety Environment - List the Involvement in Safety Matters in the Quarterly Log Book for discussion with the Engineering Supervisor | C | | | | |
| <p><i>* As appropriate to the company</i></p> | | | | | |

CORE OBJECTIVES (MNA)

| 4. Engineering Administration & Management | Code | ES initials and Date of Assessment | | | |
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| | | G | K | E | C |
| 4.1 Consideration of Company's Organization - Study the Company's Organization - Write a Report on the Management Structure of the Company - Write a Report on the Structure of the Department/Section/Project Team, Defining Roles & Responsibilities - Perform a "SWOT" Analysis on the Quarterly Log Book for the Company | C/E* | | | | |
| 4.2 Planning & Programming of A Project - Develop Skill to Plan & Programme a Project by Considering all the Internal & External Constraints - Produce a Detail Plan of a Project to discuss with the Engineering Supervisor | C/E* | | | | |
| 4.3 Budgeting of A Project - Develop Experience to Estimate Costs for the Preferred Solution of a Problem - Develop Skill to Prepare Budget for all Part of a Project Including the Use of Cost Indices : • Construction Costs • Operation Costs • Maintenance Costs • Labour & Material Costs - Present an Example to discuss with the Engineering Supervisor | C/E* | | | | |
| 4.4 Internal & External Communication - Develop Skill to Communicate Inside & Outside The Company - Develop Skill to Communicate Effectively with Technical & Non-Technical People - Develop Skill to Communicate by Using Different Media | C/E* | | | | |
| <i>* As appropriate to the company</i> | | | | | |