

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR**

**MOBILE CRANE OPERATOR**

**LEVEL 6**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

First published 2019

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social economic development. Quality education and training will contribute to achievement of Kenya’s development blueprint, Vision 2030 and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution of Kenya 2010 and this resulted to the formulation of the Policy Framework for Reforming Education and Training. A key feature of this policy is the radical change in the design and delivery of the TVET training. This policy document requires that training in TVET shall be competency based, curriculum development shall be industry led, certification shall be based on demonstration of competence and mode of delivery shall allow for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that these Occupational Standards were developed for the purpose of developing a competency-based curriculum for Mobile Crane Operator. These Occupational Standards will also be the bases for assessment of an individual for competence certification.

It is my conviction that these Occupational Standards will play a great role towards development of competent human resource for the Heavy and Light Machinery Operations sector’s growth and sustainable development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING MINISTRY OF EDUCATION**

# PREFACE

Kenya Vision 2030 aims to transform the country into a newly industrializing, “middle-income country providing a high-quality life to all its citizens by the year 2030”. Kenya intends to create a globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through life-long education and training. TVET has a responsibility of facilitating the process of inculcating knowledge, skills and attitudes necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency Based Education and Training (CBET).

The Technical and Vocational Education and Training Act No. 29 of 2013 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification in TVET. This called for shift to CBET in order to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labour force.

The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with Heavy and Light Machinery Operations Sector Skills Advisory Committee (SSAC), have developed these Occupational Standards for Heavy and Light Machinery Operator. These standards will be the bases for development of competency-based curriculum for Mobile Crane Operations level 6.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to the Council members, Council Secretariat, Mechanical Heavy and Light Machinery SSAC, expert workers and all those who participated in the development of these occupational standards.

**Prof. CHARLES M. M. ONDIEKI, PhD, FIET (K), Con. EngTech.**

**CHAIRMAN, TVET CDACC**

# ACKNOWLEDGMENT

These Occupational Standards were developed through combined effort of various stakeholders from private and public organizations. I am thankful to the management of these organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided inputs towards the development of these Standards.

I thank TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) for providing guidance on the development of these Standards. My gratitude goes to Mechanical Heavy Light Machinery Sector Skills Advisory Committee (SSAC) members for their contribution to the development of these Standards. I thank all the individuals and organizations who participated in the validation of these Standards.

I acknowledge all other institutions which in one way or another contributed to the development of these standards.

**CHAIRMAN**

**MECHANICAL HEAVY LIGHT MACHINERY SECTOR SKILLS ADVISORY**

**COMMITTEE**

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# ACRONYMS

CBET : Competency Based Education and Training

CDACC : Curriculum Development Assessment and Certification Council

OS : Occupational Standards

OSHA : Occupation Safety and Health act

PPE : Personal Protective Equipment

SSAC : Sector Skills Advisory Committee

ENG : Engineering

MCO : Mobile Crane Operations

BC : Basic Competency

CC : Common Competency

CR : Core Competency

NTSA : National Transport Safety Authority

# KEY TO UNIT CODE

ENG/OS/MCO/BC/01/ 6/A

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Version control

# OVERVIEW

Mobile Crane Operations Level 6 qualification consists of competencies that a person must achieve to enable him/her to be certified as a Mobile Crane Operator. The units of competency comprising Mobile Crane Operations certificate level 6 qualifications include the following basic and core competencies:

**BASIC COMPETENCIES**

|  |  |
| --- | --- |
| **Unit of Competency Code** | **Unit of Competency Title** |
| ENG/OS/MCO/BC/01/6/A | Demonstrate communication skills |
| ENG/OS/MCO/BC/02/6/A | Demonstrate numeracy skills |
| ENG/OS/MCO/BC/03/6/A | Demonstrate digital literacy |
| ENG/OS/MCO/BC/04/6/A | Demonstrate entrepreneurial skills |
| ENG/OS/MCO/BC/05/6/A | Demonstrate employability skills |
| ENG/OS/MCO/BC/06/6/A | Demonstrate environmental literacy |
| ENG/OS/MCO/BC/07/6/A | Demonstrate occupational health and safety practices |

**CORE COMPETENCIES**

|  |  |
| --- | --- |
| **Unit of Competency Code** | **Unit of Competency Title** |
| ENG/OS/MCO/CR/01/6/A | Operate telescopic truck mounted crane |
| ENG/OS/MCO/CR/02/6/A | Operate lattice boom crane |
| ENG/OS/MCO/CR/03/6/A | Operate fire service crane |
| ENG/OS/MCO/CR/04/6/A | Operate mobile construction crane |
| ENG/OS/MCO/CR/05/6/A | Operate crawler crane |
| ENG/OS/MCO/CR/06/6/A | Operate man lift crane |
| ENG/OS/MCO/CR/07/6/A | Operate tower crane |
| ENG/OS/MCO/CR/08/6/A | Operate mobile harbour crane |
| ENG/OS/MCO/CR/09/6/A | Operate rail mounted gantry crane |
| ENG/OS/MCO/CR/10/6/A | Operate rubber-tired gantry crane |
| ENG/OS/MCO/CR/11/6/A | Operate ship to shore gantry crane |
| ENG/OS/MCO/CR/12/6/A | Operate reach stacker machine |
| ENG/OS/MCO/CR/13/6/A | Operate empty container handler (ECH) |

**BASIC COMPETENCIES**

# DEMONSTRATE COMMUNICATION SKILLS

**UNIT CODE: ENG**/OS/MCO/BC/01/6/A

**UNIT DESCRIPTION**

This unit covers the competencies required in meeting communication needs of clients and colleagues; developing, establishing, maintaining communication pathways and strategies. It also covers competencies for conducting interview, facilitating group discussion and representing the organization in various forums.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Meet communication needs of clients and colleagues | 1.1 Specific communication needs of clients and colleagues are identified and met  1.2 Different approaches are used to meet communication needs of clients and colleagues  1.3 Conflict is addressed promptly and in a timely way and in a manner, which does not compromise the standing of the organization |
| 2. Develop communication strategies | 2.1 Strategies for effective internal and external dissemination of information are developed to meet the organization’s requirements  2.2 Special communication needs are considered in developing strategies to avoid discrimination in the workplace  2.3 Communication ***strategies*** are analysed, evaluated and revised where necessary to make sure they are effective |
| 3. Establish and maintain communication pathways | 3.1 Pathways of communication are established to meet requirements of organization and workforce  3.2 Pathways are maintained and reviewed to ensure personnel are informed of relevant information |
| 4. Promote use of communication strategies | 4.1 Information is provided to all areas of the organization to facilitate implementation of the strategy  4.2 Effective communication techniques are articulated and modelled to the workforce |
|  | 4.3 Personnel are given guidance about adapting communication strategies to suit a range of contexts |
| 5. Conduct interview | 5.1 A range of appropriate communication strategies are employed in ***interview situations***  5.2 Records of interviews are made and maintained in accordance with organizational procedures  5.3 Effective questioning, listening and nonverbal communication techniques are used to ensure that required message is communicated |
| 6. Facilitate group discussion | 6.1 Mechanisms which enhance ***effective group interaction*** is defined and implemented  6.2 Strategies which encourage all group members to participate are used routinely  6.3 Objectives and agenda for meetings and discussions are routinely set and followed  6.4 Relevant information is provided to group to facilitate outcomes  6.5 Evaluation of group communication strategies is undertaken to promote participation of all parties  6.6 Specific communication needs of individuals are identified and addressed |
| 7. Represent the organization | 7.1 When participating in internal or external forums, presentation is relevant, appropriately researched and presented in a manner to promote the organization  7.2 Presentation is clear and sequential and delivered within a predetermined time  7.3 Appropriate media is utilized to enhance presentation  7.4 Differences in views are respected  7.5 Written communication is consistent with organizational standards  7.6 Inquiries are responded in a manner consistent with organizational standard |

**RANGE** This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| Communication *strategies* include but not limited to: | * Language switch * Comprehension check * Repetition * Asking confirmation * Paraphrase * Clarification request * Translation * Restructuring * Approximation * Generalization |
| *Effective group interaction* includes but not limited to: | * Identifying and evaluating what is occurring within an interaction in a non-judgmental way * Using active listening * Making decision about appropriate words, behaviour * Putting together response which is culturally appropriate * Expressing an individual perspective * Expressing own philosophy, ideology and background and exploring impact with relevance to communication |
| *Situations* include but not limited to: | * Establishing rapport * Eliciting facts and information * Facilitating resolution of issues * Developing action plans * Diffusing potentially difficult situations |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Effective communication
* Active listening
* Giving/receiving feedback
* Interpretation of information
* Role boundaries setting
* Negotiation
* Establishing empathy
* Openness and flexibility in communication
* Communication skills required to fulfil job roles as specified by the organization
* Writing communications strategy
* Applying key elements of communications strategy

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Communication process
* Dynamics of groups and different styles of group leadership
* Communication skills relevant to client groups
* Flexibility in communication
* Communication skills relevant to client groups
* Key elements of communications strategy

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:  1.1 Developed communication strategies to meet the organization requirements and applied in the workplace  1.2 Established and maintained communication pathways for effective communication in the workplace  1.3 Used communication strategies involving exchanges of complex oral information |
| 2. Resource Implications | The following resources should be provided:  2.1 Access to relevant workplace or appropriately simulated environment where assessment can take place  2.2 Materials relevant to the proposed activity or tasks |
| 3. Methods of  Assessment | Competency in this unit may be assessed through:  3.1 Direct Observation/Demonstration with Oral Questioning 3.2 Written Examination |
| 4. Context of  Assessment | Competency may be assessed individually in the actual workplace or through accredited institution |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended |

# DEMONSTRATE NUMERACY SKILLS

**UNIT CODE:** ENG/OS/MCO/BC/02/6/A

**UNIT DESCRIPTION**

This unit describes the competencies required by a worker in order to apply a wide range of mathematical calculations for work; apply ratios, rates and proportions to solve problems; estimate, measure and calculate measurement for work; Use detailed maps to plan travel routes for work; Use geometry to draw and construct 2D and 3D shapes for work; Collect, organize and interpret statistical data; Use routine formula and algebraic expressions for work and use common functions of a scientific calculator

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized termsare elaborated in the Range.*** |
| 1. Apply a wide range of mathematical calculations for work | 1.1 Mathematical information embedded in a range of workplace tasks and texts is extracted  1.2 Mathematical information is interpreted and comprehended 1.3 A range of mathematical and problem solving processes are select and used  1.4 Different forms of fractions, decimals and percentages are flexibly used  1.5 Calculation performed with positive and negative numbers 1.6 Numbers are expressed as powers and roots and are used in calculations  1.7 Calculations done using routine formulas  1.8 Estimation and assessment processes are used to check outcome  1.9 Mathematical language is used to discuss and explain the processes, results and implications of the task |
| 2. Use and apply ratios, rates and proportions for work | 2.1 Information regarding ratios, rates and proportions extracted from a range of workplace tasks and texts  2.2 Mathematical information related to ratios, rate and proportions isanalyzed  2.3 Problem solving processes are used to undertake the task  2.4 Equivalent ratios and rates are simplified |
|  | 2.5 Quantities are calculated using ratios, rates and proportions 2.6 Graphs, charts or tables are constructed to represent ratios, rates and proportions  2.6 The outcomes reviewed and checked  2.7 Information is record using mathematical language and symbols |
| 3. Estimate, measure and calculate measurement for work | 3.1 Measurement information embedded in workplace texts and tasks are extracted and interpreted  3.2 Appropriate workplace measuring equipment are identified and selected  3.3 Accurate measurements are estimate and made  3.4 The area of 2D shapes including compound shapes are calculated  3.5 The volume of 3D shapes is calculated using relevant formulas  3.6 Sides of right angled triangles are calculated using  Pythagoras’ theorem  3.7 conversions are perform between units of measurement  3.8 Problem solving processes are used to undertake the task  3.9 The measurement outcomes are reviewed and checked  3.10 Information is recorded using mathematical language and symbols appropriate for the task |
| 4. Use detailed maps to plan travel routes for  work | 4.1 Different types of maps are identified and interpreted  4.2 Key features of maps are identified  4.3 Scales are identified and interpreted  4.4 Scales are applied to calculate actual distances  4.5 Positions or locations are determined using directional information  4.6 Routes are planned by determining directions and calculating distances, speeds and times  4.7 Information is gathered and identified and relevant factors related to planning a route checked  4.8 Relevant equipment is select and checked for accuracy and operational effectiveness  4.9 Task is planned and recorded using specialized mathematical language and symbols appropriate for the task |
| 5. Use geometry to draw 2D shapes and | 5.1 A range of 2D shapes and 3D shapes and their uses in work contexts is identified  5.2 Features of 2D and 3D shapes are named and described |
| construct 3D shapes for work | 5.3 Types of angles in 2D and 3D shapes are identified  5.4 Angles are drawn, estimated and measured using geometric instruments  5.5 Angle properties of 2D shapes are named and identified 5.6 Angle properties are used to evaluate unknown angles in shapes  5.7 Properties of perpendicular and parallel lines are applied to shapes  5.8 Understanding and use of symmetry is demonstrated  5.9 Understanding and use of similarity is demonstrated  5.10 The workplace tasks and mathematical processes required are identified  5.11 2D shapes is drawn for work  5.12 3D shapes is constructed for work  5.13 The outcomes are reviewed and checked  5.14 Specialized mathematical language and symbols appropriate for the task are used | |
| 6. Collect, organize, and interpret statistical data for work | 6.1 Workplace issue requiring investigation are identified  6.2 Audience / population / sample unit is determined  6.3 Data to be collected is identified  6.4 Data collection method is selected  6.5 Appropriate statistical data is collected and organized  6.6 Data is illustrated in appropriate formats  6.7 The effectiveness of different types of graphs are compared  6.8 The summary statistics for collected data is calculated  6.9 The results / findings are interpreted  6.10 Data is checked to ensure that it meets the expected results and content  6.11 Information from the results including tables, graphs and summary statistics is extracted and interpreted  6.12 Mathematical language and symbols are used to report results of investigation | |
| 7. Use routine formula and algebraic expressions for work | 7.1 Understanding of informal and symbolic notation, representation and conventions of algebraic expressions is demonstrated  7.2 Simple algebraic expressions and equations are developed  7.3 Operate on algebraic expressions  7.4 Algebraic expressions are simplified  7.5 Substitution into simple routine equations is done | |
|  | 7.6 Routine formulas used for work tasks are identified and comprehended  7.7 Routine formulas are evaluate by substitution  7.8 Routine formulas transposed  7.9 Appropriate formulas are identified and used for work related tasks  7.10Outcomes are checked and result of calculation used | |
| 8. Use common functions  of a scientific calculator for work | 8.1 Required numerical information to perform tasks is located 8.2 The order of operations and function keys necessary to solve mathematical calculation are determined  8.3 Function keys on a scientific calculator are identified and used  8.4 Estimations are referred to check reasonableness of problem solving process  8.5 Appropriate mathematical language, symbols and conventions are used to report results | |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Geometry | May include but not limited to:  2.1 Scale drawing  2.2 Triangles  2.3 Simple solid  2.4 Round  2.5 Square  2.6 Rectangular  2.7 Triangle  2.8 Sphere  2.9 Cylinder  2.10 Cube  2.11 Polygons  2.12 Cuboids |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Applying Fundamental operations (addition, subtraction, division, multiplication)
* Using calculator
* Using different measuring tools

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Types of common shapes
* Differentiation between two dimensional shapes / objects
* Formulae for calculating area and volume
* Types and purpose of measuring instruments
* Units of measurement and abbreviations
* Fundamental operations (addition, subtraction, division, multiplication)
* Rounding techniques
* Types of fractions
* Different types of tables and graphs
* Meaning of graphs, such as increasing, decreasing, and constant value
* Preparation of basic data, tables & graphs

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:  1.1 Performed calculations with positive and negative numbers  1.2 Used numbers expressed as powers and roots in calculations  1.3 Simplified ratios and rates  1.4 Constructed graphs, charts or tables to represent ratios, rates and proportions  1.5 Calculate the volume of 3D shapes using relevant formulas  1.6 Calculated sides of right-angle triangles using Pythagoras’ theorem  1.7 Applied scales in calculation of actual distances  1.8 Planned routes by determining directions, distance calculation, speeds and time.  1.9 Identified types of angles in 2D and 3D shapes  1.10 Used angle properties in evaluating unknown angles  1.11 Applied properties of perpendicular and parallel lines in shapes construction.  1.12 Collected and organized appropriate statistical data  1.13 Collected and organized appropriate statistical data  1.14 Identified and used appropriate formulas for work related tasks  1.15 Identified and used function keys on a scientific calculator |
| 2. Resource Implications | The following resources should be provided:  2.2 Access to relevant workplace or appropriately simulated environment where assessment can take place  2.3 Materials relevant to the proposed activity or tasks |
| 3. Methods of  Assessment | Competency in this unit may be assessed through:  3.3 Direct Observation  3.4 Demonstration with Oral Questioning  3.5 Written Examination |
| 4. Context of  Assessment | Competency may be assessed individually in the actual workplace or through accredited institution |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE DIGITAL LITERACY

**UNIT CODE:** ENG/OS/MCO/BC/03/6/A

**UNIT DESCRIPTION**

This unit covers the competencies required to effectively use digital devices such as smartphones, tablets, laptops and desktop PCs. It entails identifying and using digital devices such as smartphones, tablets, laptops and desktop PCs for purposes of communication, work performance and management at the work place.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Identify appropriate computer software and hardware | 1.1 Concepts of ICT are determined in accordance with computer equipment  1.2 Classifications of computers are determined in accordance with manufacturers specification  1.3 ***Appropriate computer software*** is identified according to manufacturer’s specification  1.4 ***Appropriate computer hardware*** is identified according to manufacturer’s specification  1.5 Functions and commands of operating system are determined in accordance with manufacturer’s specification |
| 2. Apply security measures to data, hardware, software in automated environment | 2.1 ***Data security and privacy are classified*** in accordance with the prevailing technology  2.2 ***Security threats*** reidentified ***and control measures*** are applied in accordance with laws governing protection of ICT  2.3 Computer threats and crimes are detected.  2.4 Protection against computer crimes is undertaken in accordance with laws governing protection of ICT |
| 3. Apply computer software in solving tasks | 3.1 ***Word processing concepts*** are applied in resolving workplace tasks, report writing and documentation  3.2 ***Word processing utilities*** are applied in accordance with workplace procedures |
|  | 3.3 Worksheet layout is prepared in accordance with work procedures  3.4 Worksheet is build and data manipulated in the worksheet in accordance with workplace procedures  3.5 Continuous data manipulated on worksheet is undertaken in accordance with work requirements  3.6 Database design and manipulation is undertaken in accordance with office procedures  3.7 Data sorting, indexing, storage, retrieval and security is provided in accordance with workplace procedures |
| 4. Apply internet and email in communication at workplace | 4.1 Electronic mail addresses are opened and applied in workplace communication in accordance with office policy  4.2 Office internet functions are defined and executed in accordance with office procedures  4.3 ***Network configuration*** is determined in accordance with office operations procedures  4.4 Official World Wide Web is installed and managed according to workplace procedures |
| 5. Apply Desktop publishing in  official assignments | 5.1 Desktop publishing functions and tools are identified in accordance with manufactures specifications  5.2 Desktop publishing tools are developed in accordance with work requirements  5.3 Desktop publishing tools are applied in accordance with workplace requirements  5.4 Typeset work is enhanced in accordance with workplace standards |
| 6. Prepare presentation packages | 6.1 Types of presentation packages are identified in accordance with office requirements  6.2 Slides are created and formulated in accordance with workplace procedures  6.3 Slides are edited and run in accordance with work procedures  6.4 Slides and handouts are printed according to work requirements |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply.

It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| ***Appropriate computer software*** may include but not limited to: | A collection of instructions or computer tools that enable the user to interact with a *computer*, its hardware, or perform tasks. |
| ***Appropriate computer hardware*** may include but not limited to: | Collection of physical parts of a computer system such as;   * Computer case, monitor, keyboard, and mouse * All the parts inside the computer case, such as the hard disk drive, motherboard and video card |
| ***Data security and privacy*** may include but not limited to: | * Confidentiality of data * Cloud computing * Integrity -but-curious data surfing |
| ***Security and control measures*** may include but not limited to: | * Counter measures against cyber terrorism * Risk reduction * Cyber threat issues * Risk management * Pass-wording |
| ***Security threats*** may include but not limited to: | * Cyber terrorism * Hacking |
| ***Word processing concepts*** may include but not limited to: | Using a special program to create, edit and print documents |
| ***Network configuration*** may include but not limited to: | Organizing and maintaining information on the components of a computer network |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical skills
* Interpretation
* Typing
* Communication
* Computing (applying fundamental operations such as addition, subtraction, division and multiplication)
* Using calculator
* Basic ICT skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Software concept
* Functions of computer software and hardware
* Data security and privacy
* Computer security threats and control measures
* Technology underlying cyber-attacks and networks
* Cyber terrorism
* Computer crimes
* Detection and protection of computer crimes
* Laws governing protection of ICT
* Word processing;
  + Functions and concepts of word processing.
  + Documents and tables creation and manipulations
  + Mail merging
  + Word processing utilities
* Spread sheets;
  + Meaning, formulae, function and charts, uses and layout
  + Data formulation, manipulation and application to cells

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* Database;
  + Database design, data manipulation, sorting, indexing, storage retrieval and security
* Desktop publishing;
  + Designing and developing desktop publishing tools
  + Manipulation of desktop publishing tools
  + Enhancement of typeset work and printing documents
* Presentation Packages;
  + Types of presentation Packages
  + Creating, formulating, running, editing, printing and presenting slides and handouts
* Networking and Internet;
  + Computer networking and internet.
  + Electronic mail and world wide web
* Emerging trends and issues in ICT;
  + - Identify and integrate emerging trends and issues in ICT
    - Challenges posed by emerging trends and issues

**EVIDENCEGUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |  |
| --- | --- | --- |
| 1. Critical Aspects of Competency | 1.1  1.2 | Assessment requires evidence that the candidate: Identified and controlled security threats  Detected and protected computer crimes |
|  | 1.3 | Applied word processing in office tasks |
|  | 1.4 | Designed, prepared work sheet and applied data to the cells in accordance to workplace procedures |
|  | 1.5 | Opened electronic mail for office communication as per workplace procedure |
|  | 1.6 | Installed internet and World Wide Web for office tasks in accordance with office procedures |
|  | 1.7 | Integrated emerging issues in computer ICT applications |
|  | 1.8 | Applied laws governing protection of ICT |
| 2. Resource Implications | 2.1  2.2 | Tablets  Laptops and |
|  | 2.3 | Desktop PCs |
|  | 2.4 | Desktop computer |
|  | 2.5 | Lap top |
|  | 2.6 | Calculator |
|  | 2.7 | Internet |
|  | 2.8 | Smart phone |
|  | 2.9 | Operations Manuals |
| 3. Methods of  Assessment | Competency may be assessed through:  3.1 Written Test  3.2 Demonstration  3.3 Practical assignment  3.4 Interview/Oral Questioning  3.5 Demonstration | |
| 4. Context of  Assessment | Competency may be assessed in an off and on the job setting | |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. | |

# DEMONSTRATE UNDERSTANDING OF ENTREPRENEURSHIP

**UNIT CODE :** ENG/OS/MCO/BC/04/6/A

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate understanding of entrepreneurship. It involves demonstrating understanding of an entrepreneur, entrepreneurship and self-employment. It also involves identifying entrepreneurship opportunities, creating entrepreneurial awareness, applying entrepreneurial motivation and developing business innovative strategies.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Demonstrate understanding of an Entrepreneur | 1.1 Entrepreneurs and Business persons are distinguished as per ***principles of entrepreneurship***  1.2 ***Types of entrepreneurs*** are identified as per principles of entrepreneurship  1.3 Ways of becoming an Entrepreneur are identified as per principles of Entrepreneurship  1.4 ***Characteristics of Entrepreneurs*** are identified as per principles of Entrepreneurship  1.5 Factors affecting Entrepreneurship development are explored as per principles of Entrepreneurship |
| 2. Demonstrate understanding of Entrepreneurship  and selfemployment | 2.1 Entrepreneurship and self-employment are distinguished as per principles of entrepreneurship  2.2 Importance of self-employment is analysed based on business procedures and strategies  2.3 ***Requirements for entry into self-employment*** are identified according to business procedures and strategies  2.4 Role of an Entrepreneur in business is determined according to business procedures and strategies  2.5 Contributions of Entrepreneurs to National development are identified as per business procedures and strategies  2.6 Entrepreneurship culture in Kenya is explored as per business procedures and strategies  2.7 Born or made Entrepreneurs are distinguished as per entrepreneurial traits |
| 3. Identify  Entrepreneurship opportunities | 3.1 Sources of business ideas are identified as per business procedures and strategies  3.2 ***Business ideas*** and opportunities are generated as per business procedures and strategies  3.3 Business life cycle is analysed as per business procedures and strategies  3.4 Legal aspects of business are identified as per procedures and strategies  3.5 Product demand is assessed as per market strategies  3.6 Types of ***business environment*** are identified and evaluated as per business procedures  3.7 Factors to consider when evaluating business environment are explored based on business procedure and strategies  3.8 Technology in business is incorporated as per best practice | |
| 4. Create entrepreneurial awareness | 4.1 ***Forms of businesses*** are explored as per business procedures and strategies  4.2 Sources of business finance are identified as per business procedures and strategies  4.3 Factors in selecting source of business finance are identified as per business procedures and strategies  4.4 ***Governing policies*** on Small Scale Enterprises (SSEs) are determined as per business procedures and strategies Problems of starting and operating SSEs are explored as per business procedures and strategies | |
| 5. Apply entrepreneurial motivation | 5.1 ***Internal and external motivation*** factors are determined in accordance with ***motivational theories***  5.2 Self-assessment is carried out as per ***entrepreneurial orientation***  5.3 Effective communications are carried out in accordance with ***communication principles***  5.4 Entrepreneurial motivation is applied as per motivational theories | |
| 6. Develop innovative business strategies | 6.1 Business innovation strategies are determined in accordance with the organization strategies  6.2 Creativity in business development is demonstrated in accordance with business | |
|  | strategies  6.3 ***Innovative business strategies*** are developed as per business principles  6.4 Linkages with other entrepreneurs are created as per best practice  6.1 ICT is incorporated in business growth and development as per best practice | |
| 7. Develop Business Plan | 7.1 Identified Business is described as per business procedures and strategies  7.2 Marketing plan is developed as per business plan format  7.3 Organizational/Management plan is prepared in accordance with business plan format  7.4 Production/operation plan in accordance with business plan format  7.5 Financial plan is prepared in accordance with the business plan format  7.6 Executive summary is prepared in accordance with business plan format  7.1 Business plan is presented as per best practice | |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply.

It allows for different work environment and situations that will affect performance.

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| **Variable** | **Range**  include but not limited to: | |
| 1. Types of entrepreneurs but not limited to: | 1.1 Innovators  1.2 Imitators  1.3 Craft  1.4 Opportunistic  1.5 Speculators | |
| 2. Principles of  Entrepreneurship but not limited to: | 2.1 Visionary  2.2 Solution provider  2.3 Accountability  2.4 Growth and marketing  2.5 Resilient  2.6 Tenacious | |
| 3. Characteristics of Entrepreneurs include but not limited to: | 3.1 Creative  3.2 Innovative  3.3 Planner  3.4 Risk taker  3.5 Networker  3.6 Confident  3.7 Flexible  3.8 Persistent  3.9 Patient  3.10 Independent  3.11 Future oriented  3.12 Goal oriented | |
| 4. Requirements for entry into selfemployment | 4.1 Technical skills  4.2 Management skills  4.3 Entrepreneurial skills  4.4 Resources  4.5 Infrastructure | |
| 5. Internal motivation include but not limited to: | 5.1 Interest  5.2 Passion  5.3 Freedom  5.4 Prestige | |
| 6. Business environment | 6.1 External  6.2 Internal  6.3 Intermediate | |
| 7. Forms of businesses | 7.1 Sole proprietorship  7.2 Partnership  7.3 Limited companies  7.4 Cooperatives | |
| 8. Governing policies | 8.1 Increasing scope for finance  8.2 Promoting cooperation between entrepreneurs and private sector  8.3 Reducing regulatory burden on entrepreneurs  8.4 Developing IT tools for entrepreneurs | |
| 9. External motivation include but not limited to: | 9.1 Rewards  9.2 Punishment  9.3 Enabling environment  9.4 Government policies | |
| 10. Entrepreneurial orientation include but not limited to: | 10.1  10.2 | Passion Interest |
|  | 10.3 | Hobbies |
|  | 10.4 | Skills |
| 11. Innovative business strategies include but not limited to: | 11.1  11.2 | New products  New methods of production |
|  | 11.3 | New markets |
|  | 11.4 | New sources of supplies |
|  | 11.5 | Change in industrialization |
| 12. Communication principles include but not limited to: | 12.1 12.2 | Feed back Attention |
|  | 12.3 | Clarity |
|  | 12.4 | Timeliness |
|  | 12.5 | Adequacy |
|  | 12.6 | Consistency |
|  | 12.7 | Informality |
| 13. Motivational theories include but not limited to: | 13.1 13.2  13.3 | Marslows theory  McClelland theory  Fredrick Tylors theory |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Assessing a range of alternative products and strategies
* Critically analyzing information, summarizing and making sense of previous and current market trends
* Identifying changing consumer preferences and demographics
* Thinking “outside the box”
* Ensuring quality consistency
* Reducing lead time to product/service delivery
* Management
* Using formal problem-solving procedures, e. g., root-cause analysis, six sigmas
* Communication
* Applying motivational principles, e. g., positive stroking, behavior modification
* Assessing range of alternatives rather than choosing the easiest option
* Achieving ownership and credibility for the enterprise vision
* Critically analyzing information, summarizing and making sense of previous and current market trends
* Developing solutions and practical strategies which are “outside the box”

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Entrepreneurial competencies
  + Decision making
  + Business communication ✓ Change management
  + Coping with competition
  + Risk taking
  + Net working
  + Time management
  + Leadership
* Factors affecting entrepreneurship development
* Principles of Entrepreneurship
* Features and benefits of common operational practices, e. g., continuous improvement (kaizen), waste elimination,
* Conflict resolution
* Health, safety and environment (HSE) principles and requirements
* Customer care strategies
* Basic financial management
* Business strategic planning
* Impact of change on individuals, groups and industries
* Government and regulatory processes
* Local and international market trends
* Product promotion strategies
* Market and feasibility studies
* Government and regulatory processes
* Local and international business environment
* Concepts of change management
* Relevant developments in other industries
* Regional/ County business expansion strategies
* Innovation in business

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:  1.1 Distinguished entrepreneurs and business persons correctly  1.2 Identified ways of becoming an entrepreneur appropriately  1.3 Explored factors affecting entrepreneurship development appropriately  1.4 Analysed importance of self-employment accurately  1.5 Identified requirements for entry into self-employment correctly  1.6 Identified sources of business ideas correctly  1.7 GeneratedBusiness ideas and opportunities correctly  1.8 Analysed business life cycle accurately  1.9 Identified legal aspects of business correctly  1.10 Assessed product demand accurately |

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|  | 1.11 Determined Internal and external motivation factors appropriately  1.12 Carried out communications effectively  1.13 Identified sources of business finance correctly  1.14 Determined Governing policy on small scale enterprise appropriately  1.15 Explored problems of starting and operating SSEs effectively  1.16 Developed Marketing, Organizational/Management, Production/Operation and Financial plans correctly  1.17 Prepared executive summary correctly  1.18 Determined business innovative strategies appropriately  1.19 Presented business plan effectively |
| 2. Resource Implications | The following resources should be provided:  2.1 Check list  2.2 Research tools (Questionnaire, interview guide, observation schedule)  2.3 Materials, tools, equipment and machines relevant |
| 3. Methods of  Assessment | 3.1 Written tests  3.2 Observation  3.3 Oral questions  3.4 Third party report  3.5 Interviews  3.6 Case problems  3.7 Portfolio |
| 4. Context of  Assessment | 4.1 Competency may be assessed in workplace or in a simulated workplace setting  4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE EMPLOYABILITY SKILLS

**UNIT CODE:** ENG/OS/MCO/BC/05/6/A

**UNIT DESCRIPTON**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating interpersonal communication, critical safe work habits, leading a workplace team, planning and organizing work, maintaining professional growth and development, demonstrating workplace learning, problem solving skills and managing ethical performance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT**  These describe the key outcomes which make up workplace function. | | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Conduct selfmanagement | | 1.1 Personal vision, mission and goals are formulated based on potential and in relation to organization objectives  1.2 Emotions are managed as per workplace requirements  1.3 Individual performance is evaluated and monitored according to the agreed targets.  1.4 Assertiveness is developed and maintained based on the requirements of the job.  1.5 Accountability and responsibility for own actions are demonstrated.  1.6 Self-esteem and a positive self-image are developed and maintained.  1.7 Time management, attendance and punctuality are observed as per the organization policy.  1.8 Goals are managed as per the organization’s objective  1.9 Self-strengths and weaknesses are identified as per ***personal objectives***  1.10 Critics are managed as per personal objectives |
| 2. Demonstrate interpersonal communication | | 2.1 Listening and understanding is demonstrated as per communication policy  2.2 Writing to the needs of the audience is demonstrated as per communication policy  2.3 Speaking, reading and writing is demonstrated as per communication policy  2.4 Negotiation skills are demonstrated as per communication policy  2.5 Empathizing is demonstrated as per the communication policy  2.6 Numeracy is applied as per the communication policy  2.7 Internal and external customers ‘needs are identified and interpreted as per the communication policy  2.8 Persuasion is demonstrated as per the communication policy  2.9 Communication networks reestablished as per the SOPs  2.10 Information is shared as per communication structure |
| 3. Demonstrate critical safe work habits | | 3.1 Stress is managed in accordance with workplace procedures.  3.2 Punctuality and time consciousness is demonstrated in line with workplace policy.  3.3 Personal objectives are integrated with organization goals based on organization’s strategic plan.  3.4 ***Resources*** are utilized in accordance with workplace policy.  3.5 Work priorities are set in accordance to workplace procedures.  3.6 Leisure time is recognized in line with organization policy.  3.7 Abstinence from ***drug and substance abuse*** is observed as per workplace policy.  3.8 Awareness of HIV and AIDS is demonstrated in line with workplace requirements.  3.9 Safety consciousness is demonstrated in the workplace based on organization safety policy.  3.10 ***Emerging issues*** are dealt with in accordance with organization policy. |
| 4. Lead a workplace team | | 4.1 Performance expectations for the ***team*** are set  4.2 Duties and responsibilities are assigned in accordance with the organization policy.  4.3 Team parameters and ***relationships*** are identified according to set rules and regulations.  4.4 ***Forms of communication*** in a team are established according to office policy.  4.5 Communicationis carried out as per workplace place policy and requirements of the job.  4.6 Teamperformance is supervised  4.7 ***Feedback*** on performance is collected and analyzed based on established team learning process  4.8 Conflicts are resolved between team members in line with organization rules and regulations.  4.9 ***Gender mainstreaming*** is undertaken in accordance with set regulations.  4.10 Human rights are adhered to in accordance with existing protocol.  4.11 Healthy relationships are developed and maintained for harmonious co-existence in line with workplace. |
| 5. Plan and organize work | | 5.1 Taskrequirements are identified as per the workplace objectives  5.2 Task is interpreted in accordance with safety (OHS ), environmental requirements and quality requirements  5.3 Work activity is organized with other involved personnel as per the SOPs  5.4 Resources are mobilized, allocated and utilized to meet project goals and deliverables.  5.5 Work activities are monitored and evaluated in line with organization procedures.  5.6 Job planning is documented in accordance with workplace requirements.  5.7 Planning and organizing of work activities is reviewed as per the workplace requirements  5.8 Time is managed achieve workplace set goals and objectives. |
| 6. Maintain professional growth and development | | 6.1 Personal training needs are identified and assessed in line with the requirements of the job.  6.2 ***Training and career opportunities*** are identified and availed based on job requirements.  6.3 Resources for training are mobilized and allocated based organizations skills needs.  6.4 Licensees and certifications relevant to job and career are obtained and renewed.  6.5 ***Personal growth*** is pursued towards improving the qualifications set for the profession.  6.6 Work priorities and commitments are managed based on requirement of the job and workplace policy.  6.7 Recognitions are sought as proof of career advancement in line with professional requirements. |
| 7. Demonstrate workplace learning | 7.1 Own learning is managed as per workplace policy.  7.2 Learning opportunities are sought and allocated based on job requirement and in line with organization policy.  7.3 Contribution to the learning community at the workplace is carried out.  7.4 ***Range of media for learning*** are established as per the training need  7.5 Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job  7.6 Enthusiasm for ongoing learning is demonstrated  7.7 Time and effort is invested in learning new skills-based job requirements  7.8 Willingness to learn in different context is demonstrated based on available learning opportunities arising in the workplace.  7.9 Awareness of Occupational Health and Safety procedures are demonstrated in use of technology in the workplace.  7.10 Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy.  7.11 New systems are developed and maintained in accordance with the requirements of the job.  7.12 Opportunities that are not obvious are identified and exploited in line with organization objectives.  7.13 Opportunities for performance improvement are identified proactively in area of work.  7.14 Awareness of personal role in workplace ***innovation*** is demonstrated. | | |
| 8. Demonstrate problem  solving skills | 8.1 Creative, innovative and practical solutions are developed based on the problem  8.2 Independence and initiative in identifying and solving problems is demonstrated.  8.3 Team problems are solved as per the workplace guidelines  8.4 Problem solving strategies are applied as per the workplace guidelines  8.5 Problems are analyzed and assumptions tested as per the context of data and circumstances | | |
| 9. Manage workplace  ethics | 9.1 Policies and guidelines are observed as per the workplace requirements  9.2 Self-worth and profession is exercised in line with personal goals and organizational policies  9.3 Code of conduct is observed as per the workplace requirements  9.4 Personal and professional integrity is demonstrated as per the personal goals  9.5 Commitment to jurisdictional laws is demonstrated as per the workplace requirements | | |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply.

It allows for different work environment and situations that will affect performance.

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| **Range** | **Variable** | |
| * ***Drug and substance abuse*** include but not limited to: | Commonly abused   * Alcohol * Tobacco * Miraa * Over-the-counter drugs * Cocaine * Bhang * Glue | |
| * ***Feedback*** includes but not limited to: | * Verbal * Written * Informal * Formal | |
| * **Relationships** includes but not limited to: | * Man/Woman * Trainer/trainee * Employee/employer * Client/service provider * Husband/wife * Boy/girl * Parent/child * Sibling relationships | |
| * **Forms of communication** include but not limited to: | * Written * Visual * Verbal * Non verbal * Formal and informal | |
| * **Team** includes but not limited to: | * Small work group * Staff in a section/department * Inter-agency group | |
| * **Personal growth** includes but not limited to: | * Growth in the job * Career mobility * Gains and exposure the job gives * Net workings * Benefits that accrue to the individual as a result of noteworthy performance | |
| * **Personal objectives** include but not limited to: | * Long term * Short term * Broad * Specific | |
| * **Trainings and career opportunities** includes but not limited to | * Participation in training programs o Technical o Supervisory o Managerial o Continuing Education * Serving as Resource Persons in conferences and workshops | |
| * **Resource** include but not limited to: | * Human * Financial * Technology o Hardware o Software | |
| * **Innovation** include but not limited to: | * New ideas * Original ideas * Different ideas * Methods/procedures * Processes * New tools | |
| * **Emerging issues** include but not limited to: | • •  • | Terrorism  Social media  National cohesion |
|  | • | Open offices |
| * **Range of media for learning** include but not limited to: | • •  • | Mentoring  peer support and networking IT and courses |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Personal hygiene practices
* Intra and Interpersonal skills
* Communication skills
* Knowledge management
* Interpersonal skills
* Critical thinking skills
* Observation skills
* Organizing skills
* Negotiation skills
* Monitoring skills
* Evaluation skills
* Record keeping skills
* Problem solving skills
* Decision Making skills
* Resource utilization skills
* Resource mobilization skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Work values and ethics
* Company policies
* Company operations, procedures and standards
* Occupational Health and safety procedures
* Fundamental rights at work
* Personal hygiene practices
* Workplace communication
* Concept of time
* Time management
* Decision making
* Types of resources
* Work planning
* Resources and allocating resources
* Organizing work
* Monitoring and evaluation
* Record keeping
* Workplace problems and how to deal with them
* Negotiation
* Assertiveness
* Team work
* Gender mainstreaming
* HIV and AIDS
* Drug and substance abuse
* Leadership
* Safe work habits
* Professional growth and development
* Technology in the workplace
* Learning
* Creativity
* Innovation
* Emerging issues o Social media o Terrorism o National cohesion

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical aspects of Competency | | | Assessment requires evidence that the candidate:  1.1 Conducted self-management |
|  | 1.2 Demonstrated interpersonal communication  1.3 Demonstrated critical safe work habits  1.4 Demonstrated the ability to lead a workplace team  1.5 Planned and organized work  1.6 Maintained professional growth and development  1.7 Demonstrated workplace learning  1.8 Demonstrated problem solving skills  1.9 Demonstrated the ability to manage ethical performance | |
| 2. Resource Implications | The following resources should be provided:  2.1 Case studies/scenarios | |
| 3. Methods of  Assessment | Competency in this unit may be assessed through:   * Oral Interview * Observation * Third Party Reports * Written | |
| 4. Context of  Assessment | 4.1 Competency may be assessed in workplace or in a simulated workplace setting  4.2 Assessment shall be observed while tasks are being undertaken whether individually or in-group | |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. | |

# DEMONSTRATE ENVIRONMENTAL LITERACY

**UNIT CODE: ENG**/OS/MCO/BC/06/6/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to follow procedures for environmental hazard control, follow procedures for environmental pollution control, comply with workplace sustainable resource use, evaluate current practices in relation to resource usage, develop and adhere to environmental protection principles/strategies/guidelines, analyze resource use, develop resource conservation plans and implement selected plans.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** | |
| 1. Control environmental hazard | 1.1 ***Storage methods*** for environmentally hazardous materials are strictly followed according to environmental regulations and  OSHS.  1.2 ***Disposal methods*** of hazardous wastes are followed at all times according to environmental regulations and OSHS.  1.3 ***PPE*** is used according to OSHS. | |
| 2. Control environmental Pollution control | 2.1 Environmental pollution ***control measures*** are compiled following standard protocol.  2.2 Procedures for solid waste management are observed according Environmental Management and Coordination Act 1999  2.3 Methods for minimizing ***noise pollution*** complied following environmental regulations. | |
| 3. Demonstrate sustainable resource use | 3.1 Methods for minimizing wastage are complied with.  3.2 Waste management procedures are employed following principles of 3Rs (Reduce, Reuse, Recycle)  3.3 Methods for economizing or reducing resource consumption are practiced. |
| 4. Evaluate current practices in relation to resource usage | 4.1 Information on resource efficiency systems and procedures are collected and provided to the work group where appropriate.  4.2 Current resource usage is measured and recorded by members of the work group.  4.3 Current purchasing strategies are analyzed and recorded according to industry procedures.  4.4 Current work processes to access information and data is analyzed following enterprise protocol. |
| 5. Identify Environmental legislations/conventions for environmental concerns | 5.1 Environmental legislations/conventions and local ordinances are identified according to the different environmental aspects/impact  5.2 Industrial standard/environmental practices are described according to the different environmental concerns |
| 6. Implement specific environmental programs | 6.1 Programs/Activities are identified according to organizations policies and guidelines.  6.2 Individual roles/responsibilities are determined and performed based on the activities identified.  6.3 Problems/constraints encountered are resolved in accordance with organizations’ policies and guidelines  6.4 Stakeholders are consulted based on company guidelines |
| 7. Monitor activities on Environmental protection/Programs | 7.1 Activities are periodically monitored and Evaluated according to the objectives of the environmental program  7.2 Feedback from stakeholders are gathered and considered in Proposing enhancements to the program based on consultations  7.3 Data gathered are analyzed based on Evaluation requirements  7.4 Recommendations are submitted based on the findings  7.5 Management support systems are set/established to sustain and enhance the program |
|  | 7.6 Environmental incidents are monitored and reported to concerned/proper authorities |
| 8. Analyze resource use | 8.1. All resource consuming processes are Identified  8.2. Quantity and nature of Resource consumed is determined  8.3. Resource flow is analyzed through different parts of the process.  8.4. Wastes are classified for possible source of resources. |
| 9. Develop resource Conservation plans | 9.1. Efficiency of use/conversion of resources is determined following industry protocol.  9.2. Causes of low efficiency of use of resources are Determined based on industry protocol.  9.3. Plans for increasing the efficiency of resource use are developed based on findings. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply.

It allows for different work environments and situations that will affect performance.

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| **Variable** | **Range** |
| * **PPE** May include but are not limited to | 1.1 Mask  1.2 Gloves  1.3 Goggles  1.4 Safety hat  1.5 Overall  1.6 Hearing protector |
| * **Environmental pollution control measures** may include but are not limited to: | 2.1 Methods for minimizing or stopping spread and ingestion of airborne particles  2.2 Methods for minimizing or stopping spread and ingestion of gases and fumes  2.4 Methods for minimizing or stopping spread and ingestion of liquid wastes |
| * **Wastes** may include but are not limited to: | 3.1 Unnecessary waste  3.2 Necessary waste |
| * **Waste management Procedures** may include but are not limited to: | 4.1 Sorting  4.2 Storing of items  4.2 Recycling of items  4.3 Disposal of items |
| * **Resources** may include but are not limited to: | 5.1 Electric  5.2 Water  5.3 Fuel  5.4 Telecommunications  5.5 Supplies  5.6 Materials |
| * **Workplace environmental hazards** may include but are not limited to: | 6.1Biological hazards  6.2 Chemical and dust hazards  6.3 Physical hazards |
| * ***Organizational systems and procedures*** may include but are not limited to: | 7.1 Supply chain, procurement and purchasing  7.2 Quality assurance  7.3 Making recommendations and seeking approvals |
| * **Legislations/Conventions** may include but are not limited to: | 8.1 EMCA 1999  8.2 Montreal Protocol  8.3 Kyoto Protocol |
| * **Environmental aspects/impacts** may include but are not limited to: | 9.1 Air pollution  9.2 Water pollution  9.3 Noise pollution  9.4 Solid waste  9.5 Flood control  9.6 Deforestation/Denudation  9.7 Radiation/Nuclear /Radio Frequency/ Microwaves  9.8 Situation  9.9 Soil erosion (e.g. Quarrying, Mining, etc.)  9.10 Coral reef/marine life protection |
| * **Industrial standards /**   **Environmental practices** may include but are not limited to: | 10.1 ISO standards  10.2 Company environmental management systems  (EMS) |

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| * **Periodic** may include but are not limited to: | 11.1 hourly  11.2 daily  11.3 weekly  11.4 monthly  11.5 quarterly  11.6 yearly |
| * **Programs/Activities** may include but are not limited to: | 12.1 Waste disposal (on-site and off-site)  12.2 Repair and maintenance of equipment  12.3 Treatment and disposal operations  12.4 Clean-up activities  12.5 Laboratory and analytical test  12.6 Monitoring and evaluation  12.7 Environmental advocacy programs |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Following storage methods of environmentally hazardous materials
* Following disposal methods of hazardous wastes
* Using PPE
* Practicing OSHS
* Complying environmental pollution control
* Observing solid waste management

Complying methods of minimizing noise Pollution

Complying methods of minimizing wastage

Employing waste management procedures

Economizing resource consumption

* Listing of resources used
* Measuring current usage of resources
* Identifying and reporting workplace environmental hazards
* Conveying all environmental issues
* Following environmental regulations
* Identifying environmental regulations
* Assessing procedures for assessing compliance
* Collecting information on environmental and resource efficiency systems and procedures, and Providing information to the work group
* Measuring and recording current resource usage • Analysing and recording current purchasing strategies.
* Analysing current work processes to access information and data and Assisting identifying areas for improvement
* Analysing resource flow
* Determining efficiency of use/conversion of resources
* Determining causes of low efficiency of use
* Developing plans for increasing the efficiency of resource use
* Checking resource use plans
* Complying to regulations/licensing requirements
* Determining benefit/cost of plans
* Ranking proposals based on benefit/cost compared to limited resources
* Checking proposals meet regulatory requirements
* Monitoring implementation
* Making adjustments to plan and implementation
* checking new resource usage

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Storage methods of environmentally hazardous materials
* Disposal methods of hazardous wastes
* Usage of PPE Environmental regulations
* OSHS

Types of pollution

Environmental pollution control measures

Different solid wastes

Solid waste management

* Different noise pollution
* Methods of minimizing noise pollution
* Methods of minimizing wstage
* Waste management procedures
* Economizing of resource consumption
* Principle of 3Rs
* Types of resources
* Techniques in measuring current usage of resources
* Calculating current usage of resources
* Types of workplace environmental hazards
* Environmental regulations
* Environmental regulations applying to the enterprise.
* Procedures for assessing compliance with environmental regulations.
* Collection of information on environmental and resource efficiency systems and procedures,
* Measurement and recording of current resource usage • Analysis and recording of current purchasing strategies.
* Analysis current work processes to access information and data Analysis of data and information
* Identification of areas for improvement
* Resource consuming processes
* Determination of quantity and nature of resource consumed
* Analysis of resource flow of different parts of the resource flow process
* Use/conversion of resources
* Causes of low efficiency of use
* Increasing the efficiency of resource use
* Inspection of resource use plans
* Regulations/licensing requirements
* Determine benefit/cost for alternative resource sources
* Benefit/costs for different alternatives
* Components of proposals
* Criteria on ranking proposals
* Regulatory requirements
* Proposals for improving resource efficiency Implementation of resource efficiency plans

Procedures in monitor implementation

Adjustments of implementation plan

Inspection of new resource usage

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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|  | 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:  1.1 Controlled environmental hazard  1.2 Controlled environmental pollution  1.3 Demonstrated sustainable resource use  1.4 Evaluated current practices in relation to resource usage  1.5 Demonstrated knowledge of environmental legislations and local ordinances according to the different environmental issues /concerns.  1.6 Described industrial standard environmental practices according to the different environmental issues/concerns.  1.7 Resolved problems/ constraints encountered based on management standard procedures  1.8 Implemented and monitored environmental practices on a periodic basis as per company guidelines  1.9 Recommended solutions for the improvement of the program  1.10 Monitored and reported to proper authorities any environmental incidents |
|  | 2. Resource Implications | The following resources should be provided:  2.1 Workplace with storage facilities  2.2 Tools, materials and equipment relevant to the tasks (e.g. Cleaning tools, cleaning materials, trash bags)  2.3 PPE, manuals and references  2.4 Legislation, policies, procedures, protocols and localordinances relating to environmental protection  2.5 Case studies/scenarios relating to environmental Protection |
| 3 | Methods of Assessment | Competency in this unit may be assessed through:  3.1 Demonstration  3.2 Oral questioning  3.3 Written examination  3.4 Interview/Third Party Reports  3.5 Portfolio (citations/awards from GOs and NGOs, certificate of training – local and abroad)  3.6 Simulations and role-play |

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| 4 | Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5 | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE:** ENG/OS/MCO/BC/07/6/A

**UNIT DESCRIPTION**

This unit specifies the competencies required to lead the implementation of workplace’s safety and health program, procedures and policies/guidelines.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Identify workplace hazards and risk | 1.1 ***Hazards*** in the workplace and/or its ***indicators*** of its presence, are identified  1.2 ***Evaluation and/or work environment*** measurements of OSH hazards/risk existing in the workplace is conducted by authorized personnel or agency  1.3 ***OSH issues and/or concerns*** raised by workers are  Gathered |
| 2. Identify and implement appropriate control measures | 2.1 Prevention ***and control measures***, including use of  s***afety gears / PPE (personal protective equipment)*** for specific hazards identified and implemented  2.2 ***Appropriate risk controls*** based on result of OSH hazard evaluation is recommended.  2.3 ***Contingency measures***, including ***emergency procedures*** during workplace ***incidents and emergencies*** are |
|  | recognized and established in accordance with organization procedures. |
| 3. Implement OSH programs, procedures and policies/ guidelines | 3.1 Information to work team about company OSH program, procedures and policies/guidelines are provided  3.2 Implementation of OSH procedures and policies/ guidelines are participated  3.3 Team members are trained and advised on OSH standards and procedures  3.4 Procedures for maintaining ***OSH-related records*** are implemented |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply.

It allows for different work environments and situations that will affect performance.

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| **Variable** | **Range** |
| 1. ***Hazards may include*** but are not limited to: | 1.1. Physical hazards – impact, illumination, pressure, noise, vibration, extreme temperature, radiation  1.2 Biological hazards- bacteria, viruses, plants, parasites, mites, molds, fungi, insects  1.3 Chemical hazards – dusts, fibers, mists, fumes, smoke, gasses, vapors  1.4 Ergonomics  Psychological factors – over exertion/ excessive force, awkward/static positions, fatigue, direct pressure, varying metabolic cycles  Physiological factors – monotony, personal relationship, work out cycle  1.6 Safety hazards (unsafe workplace condition) – confined space, excavations, falling objects, gas leaks, electrical, poor storage of materials and waste, spillage, waste and debris  1.7 Unsafe workers’ act (Smoking in off-limited areas, Substance and alcohol abuse at work) |
| 2. ***Indicators may include*** but are not limited to: | 2.1 Increased of incidents of accidents, injuries  2.2 Increased occurrence of sickness or health complaints/ symptoms  2.3 Common complaints of workers related to OSH  2.4 High absenteeism for work-related reasons |

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| 3. ***Evaluation and/or work environment***  ***measurements*** may include but are not limited to: | 3.1 Health Audit  3.2 Safety Audit  3.3 Work Safety and Health Evaluation  3.4 Work Environment Measurements of Physical and Chemical  Hazards |
| 4. ***OSH issues and/or concerns*** may include but are not limited to: | 4.1 Workers’ experience/observance on presence of work hazards  4.2 Unsafe/unhealthy administrative arrangements (prolonged work hours, no break time, constant overtime, scheduling of tasks)  4.3 Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/guidelines |
| 5. ***Prevention and control measures*** may include but are not limited to: | 5.1 Eliminate the hazard (i.e., get rid of the dangerous machine  5.2 Isolate the hazard (i.e. keep the machine in a closed room and operate it remotely; barricade an unsafe area off)  5.3 Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one)  5.4 Use administrative controls to reduce the risk (i.e. give trainings on how to use equipment safely; OSH-related topics, issue warning signages, rotation/shifting work schedule)  5.5 Use engineering controls to reduce the risk (i.e. use safety guards to machine)  5.6 Use personal protective equipment  5.7 Safety, Health and Work Environment Evaluation  5.8 Periodic and/or special medical examinations of workers |

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| 6. ***Safety gears /PPE***  ***(Personal Protective Equipments)*** may include but are not limited to: | 6.1 Arm/Hand guard, gloves  6.2 Eye protection (goggles, shield)  6.3 Hearing protection (ear muffs, ear plugs)  6.4 Hair Net/cap/bonnet  6.5 Hard hat  6.6 Face protection (mask, shield)  6.7 Apron/Gown/coverall/jump suit  6.8 Anti-static suits  6.9 High-visibility reflective vest |
| ***7. Appropriate risk controls*** | Appropriate risk controls in order of impact are as follows:  7.1 Eliminate the hazard altogether (i.e., get rid of the dangerous machine)  7.2 Isolate the hazard from anyone who could be harmed (i.e., keep the machine in a closed room and operate it remotely; barricade an unsafe area off)  7.3 Substitute the hazard with a safer alternative (i.e., replace the machine with a safer one)  7.4 Use administrative controls to reduce the risk (i.e., train workers how to use equipment safely; train workers about the risks of harassment; issue signage)  7.5 Use engineering controls to reduce the risk (i.e., attach guards to the machine to protect users)  7.6 Use personal protective equipment (i.e., wear gloves and goggles when using the machine) |

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| 8. ***Contingency measures*** may include but are not limited to: | 8.1 Evacuation  8.2 Isolation  8.3 Decontamination  8.4 (Calling designed) emergency personnel |
| 9. ***Emergency procedures*** may include but are not limited to: | 9.1 Fire drill  9.2 Earthquake drill  9.3 Basic life support/CPR  9.4 First aid  9.5 Spillage control  9.6 Decontamination of chemical and toxic  9.7 Disaster preparedness/management  9.8 se of fire-extinguisher |
| 10. ***Incidents and emergencies*** may include but are not limited to: | 10.1 Chemical spills  10.2 Equipment/vehicle accidents  10.3 Explosion  10.4 Fire  10.5 Gas leak  10.6 Injury to personnel  10.7 Structural collapse  10.8 Toxic and/or flammable vapors emission. |
| 11. ***OSH-related Records*** may include but are not limited to: | 11.1 Medical/Health records  11.2 Incident/accident reports  11.3 Sickness notifications/sick leave application  11.4 OSH-related trainings obtained |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Skills on preliminary identification of workplace hazards/risks
* Knowledge management
* Critical thinking skills
* Observation skills
* Coordinating skills
* Communication skills
* Interpersonal skills
* Troubleshooting skills
* Presentation skills
* Training skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* General OSH Principles
* Occupational hazards/risks recognition
* OSH organizations providing services on OSH evaluation and/or work environment measurements (WEM)
* National OSH regulations; company OSH policies and protocols
* Systematic gathering of OSH issues and concerns
* General OSH principles
* National OSH regulations
* Company OSH and recording protocols, procedures and policies/guidelines
* Training and/or counseling methodologies and strategies

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:  1.1 Identifies hazards/risks in the workplace and/or its indicators  1.2 Requests for evaluation and/or work environment measurements of OSH hazards/risk in the workplace  1.3 Gathers OSH issues and/or concerns raised by workers  1.4 Identifies and implements prevention and control measures, including use of PPE (personal protective equipment) for specific hazards  1.5 Recommends appropriate risk controls based on result of OSH hazard evaluation and OSH issues gathered  1.6 Establish contingency measures, including emergency procedures in accordance with organization procedures  1.7 Provides information to work team about company OSH program, procedures and policies/guidelines  1.8 Participates in the implementation of OSH procedures and policies/guidelines  1.9 Trains and advises team members on OSH standards and procedures  1.10 Implements procedures for maintaining OSH-related records |
| 2. Resource  Implications | The following resources should be provided:  2.1 Workplace or assessment location  2.2 OSH personal records  2.3 PPE  2.4 Health records |
| 3. Methods of  Assessment | Competency may be assessed through:  3.1 Portfolio Assessment  3.2 Interview  3.3 Case Study/Situation  3.4 Observation/Demonstration and oral questioning |
| 4. Context of  Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE UNITS OF COMPETENCY

# OPERATE TELESCOPIC TRUCK MOUNTED CRANE

**UNIT CODE:** ENG/OS/MCO/CR/01/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate telescopic truck mounted crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting telescopic truck mounted crane operation and performing crane care and maintenance

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Load calculation as per manufacturers’ load chart specifications  2.3 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements  2.5 Appropriate outrigger plates or parking are correctly used to adequately distribute the load according to worksite requirements  2.6 Outrigger parking is checked for adequacy prior to and after lift is taken according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications  3.4 The crane block is reeved according to worksite requirements and manufacturer’s specifications  3.5 Counterweights are installed according to worksite requirements and manufacturer’s specifications |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
|  | 3.6 Straight fly jibs and luffing fly jibs are assembled and fitted according to worksite requirements and manufacturer’s specifications |
| 4. Conduct  telescopic truck mounted crane operation | 4.1 Telescopic truck mounted crane is moved to the required work area and is positioned for specific operation according to job requirements  4.2 ***Telescopic truck mounted crane activities*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to OSHA requirements  4.5 Telescopic truck mounted crane is moved from the work area to the yard in accordance with operator’s safety manual and current traffic act. |
| 5. Perform crane care and maintenance | 5.1 Truck is maintained according worksite requirement  5.2 Wire ropes and gears are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencie***s*** in wire ropes and gear are identified and reported according to worksite requirements  5.4 Damaged wire ropes and gear are disposed according to OSHA requirements  5.5 Wire ropes and gears are stored in designated areas according to worksite requirements, manufacturers’ specifications and OSHA requirements  5.6 General housekeeping procedures are followed according to worksite requirements |
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**RANGE**

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| **Variable** | **Range**  *May include but is not limited to:* | |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details | |
| 2. Worksite safety | * PPE * Working at heights * Barricades | |
|  | • | Warning, informative and/or prohibitive signs |
| 3. Telescopic truck mounted crane activities | •  • | Lift materials by use of a hydraulic winch  Raise and lower the boom |
|  |  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| --- | --- | --- |
| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted telescopic truck mounted crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Telescopic truck mounted crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. | Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE LATTICE BOOM CRANE

**UNIT CODE:** ENG/OS/MCO/CR/02/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate lattice boom crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting lattice boom crane operation and performing crane care and maintenance

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment and gearsare selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Radius is measured as per manufacturers’ load chart specifications  2.3 Ground is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements  2.5 Appropriate outrigger plates or parking are correctly used to adequately distribute the load according to worksite requirements  2.6 Outrigger parking is checked for adequacy prior to and after lift is taken according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
|  | 3.4 The crane block is reeved according to worksite requirements and manufacturer’s specifications  3.5 Counterweights are installed according to worksite requirements and manufacturer’s specifications  3.6 Straight fly jibs and luffing fly jibs are assembled and fitted according to worksite requirements and manufacturer’s specifications |
| 4. Conduct lattice boom crane operation | 4.1 Lattice boom crane is moved to the required work area and is positioned for specific operation according to job requirements  4.2 Lattice boom crane activities are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to OSHA requirements  4.5 Lattice boom crane is moved from the work area to the yard in accordance with operator’s safety manual. |
| 5. Perform crane care and maintenance | 5.1 Lattice boom crane is maintained according to worksite requirement  5.2 Wire ropes and gears are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in wire ropes and gears are identified and reported according to worksite requirements  5.4 Damaged wire ropes and gears are disposed according to OSHA requirements  5.5 Gears are stored in designated areas according to worksite requirements, manufacturers’ specifications and OSHA requirements  5.6 General housekeeping procedures are followed according to worksite requirements |
|  |  |

**RANGE**

|  |  |  |
| --- | --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* | |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details | |
| 2. Worksite safety | • PPE | |
|  | • | Working at heights |
|  | • | Barricades |
|  | • | Warning, informative and/or prohibitive signs |
| 3. Attachments | • | wire rope |
|  | • | Adjustable counter weight |
|  | • | Hook |
|  | • | ball |
|  |  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| --- | --- | --- |
| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted lattice boom crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Lattice boom crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks |
|  |  | 3.4 Observation |
| 4. | Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE FIRE SERVICE CRANE

**UNIT CODE:** ENG/OS/MCO/CR/03/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate fire service crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting fire service crane operation and performing crane care and maintenance

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Radius is measured as per manufacturers’ load chart specifications  2.3 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements  2.5 Appropriate outrigger plates or parking are correctly used to adequately distribute the load according to worksite requirements  2.6 Outrigger parking is checked for adequacy prior to and after lift is taken according to job requirements |
| 3. Assemble the crane | 3.1 Crane attachments are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according  to worksite requirements and manufacturer’s specifications  3.4 Counterweights are installed according to worksite requirements and manufacturer’s specifications  3.5 Straight fly jibs is assembled and fitted according to worksite requirements and manufacturer’s specifications |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 4. Conduct fire service crane operation | 4.1 Fire service crane is moved to the required work area and is positioned for specific operation according to job requirements  4.2 ***Fire service crane activities*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to OSHA requirements  4.5 Fire service crane is moved from the work area to the yard in accordance with operator’s safety manual and current traffic act. |
| 5. Perform crane care and maintenance | 5.1 Fire service crane truck is maintained according worksite requirement  5.2 Deficiencies in gears are identified and reported according to worksite requirements  5.3 Damaged gears are disposed according to OSHA requirements  5.4 Gears are stored in designated areas according to worksite requirements, manufacturers’ specifications and OSHA requirements  5.5 General housekeeping procedures are followed according to worksite requirements |
|  |  |

**RANGE**

|  |  |
| --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details |
| 2. Worksite safety | * PPE * Working at heights * Barricades * Warning, informative and/or prohibitive signs |
| 3. Fire service crane activities | * Fighting fires * Securing vehicles on bridges at risk of falling * Raising and repositioning collapsed loads * Rescuing and towing broken-down vehicles * Clearing fire sites * Removing storm damage |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| --- | --- | --- |
| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted fire service crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Fire service crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. Context of  Assessment | | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE MOBILE CONSTRUCTION CRANE

**UNIT CODE:** ENG/OS/MCO/CR/04/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate mobile construction crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting mobile construction crane operation and performing crane care and maintenance

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Radius is measured as per manufacturers’ load chart specifications  2.3 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements  2.5 Appropriate outrigger plates or parking are correctly used to adequately distribute the load according to worksite requirements  2.6 Outrigger parking is checked for adequacy prior to and after lift is taken according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications  3.4 The crane block is reeved according to worksite requirements and manufacturer’s specifications  3.5 Counterweights are installed according to worksite requirements and manufacturer’s specifications |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
|  | 3.6 Straight fly jibs and luffing fly jibs are assembled and fitted according to worksite requirements and manufacturer’s specifications |
| 4. Conduct mobile construction crane operation | 4.1 Mobile construction crane is moved to the required work area and is positioned for specific operation according to job requirements  4.2 ***Mobile construction crane activities*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to manufacturers’ specifications and OSHA requirements  4.5 Mobile construction crane is moved from the work area to the yard in accordance with operator’s safety manual and current traffic act. |
| 5. Perform crane care and maintenance | 5.1 Mobile construction crane is maintained according worksite requirement and manufacturers’ specifications  5.2 Wire ropes and gears are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in wire ropes and gear are identified and reported according to worksite requirements  5.4 Damaged wire ropes and gear are disposed according to OSHA requirements  5.5 Gears are stored in designated areas according to worksite requirements, manufacturers’ specifications and OSHA requirements  5.6 General housekeeping procedures are followed according to worksite requirements |
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**RANGE**

|  |  |
| --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details |
| 2. Worksite safety | * PPE * Working at heights * Barricades |

|  |  |  |
| --- | --- | --- |
|  | • | Warning, informative and/or prohibitive signs |
| 3. Attachments | • | Telescopic boom |
|  | • | Pulley |
|  | • | Head block |
|  | • | Hook |
| 4. Mobile construction crane activities | •  • | Hoist large, heavy materials  Transport large, heavy materials |
|  | • | Placed large, heavy materials. |
|  | |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted mobile construction craneoperation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Mobile construction crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview |
|  |  | 3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. | Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE CRAWLER CRANE

**UNIT CODE:** ENG/OS/MCO/CR/05/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate crawler crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting crawler crane operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Radius is measured as per manufacturers’ load chart specifications  2.3 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications  3.4 The crane block is reeved according to worksite requirements and manufacturer’s specifications  3.5 Counterweights are installed according to worksite requirements and manufacturer’s specifications  3.6 Straight fly jibs and luffing fly jibs are assembled and fitted according to worksite requirements and manufacturer’s specifications |
| 4. Conduct crawler crane operation | 4.1 Crawler crane is moved to the required work area and is positioned for specific operation according to job requirements |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
|  | 4.2 ***Crawler crane activities*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to manufacturers’ specifications andOSHA requirements  4.5 Crawler crane is moved from the work area to the yard in accordance with operator’s safety manual and current traffic act. |
| 5. Perform crane care and maintenance | 5.1 Crawler crane is maintained according worksite requirement  5.2 Wire ropes and gears are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in wire ropes and gear are identified and reported according to worksite requirements  5.4 Damaged wire ropes and gear are disposed according to OSHA requirements  5.5 Wire ropes and gears are stored in designated areas according to worksite requirements, manufacturers’ specifications and OSHA requirements  5.6 General housekeeping procedures are followed according to worksite requirements |
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**RANGE**

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| **Variable** | **Range**  *May include but is not limited to:* | |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details | |
| 2. Worksite safety | * PPE * Working at heights * Barricades * Warning, informative and/or prohibitive signs | |
| 3. Crawler crane  activities | * Lifting operations * Demolition * Bridge/Road construction * Cargo loading * Removal of debris | |
| 4. Attachments | • | Lattice boom |
|  | • | Hook |
|  | • | Block |
|  | • | Pulley |
|  | • | Drum |
|  | • | Counter weight |
|  | • | Boom guy lines |
|  |  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted crawler crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Crawler crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks |
|  |  | 3.4 Observation |
| 4. | Context of Assessment | Competency may be assessed on the job, off the job or a  combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
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# OPERATE MAN LIFT CRANE

**UNIT CODE:** ENG/OS/MCO/CR/06/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate man lift crane. It involves planning for work activities, monitoring crane positioning, conducting man lift crane operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Radius is measured as per manufacturers’ load chart specifications  2.3 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements  2.5 Outrigger parking is checked for adequacy prior to and after lift is taken according to job requirements |
| 3. Conduct man  lift crane operation | 3.1 Man lift crane is moved to the required work area and is positioned for specific operation according to job requirements  3.2 ***Man lift crane activities*** are performed within industry accepted timeframes and job requirements  3.3 Unexpected circumstances are dealt with according to worksite requirements  3.4 Safe working procedures are followed according to manufacturers’ specifications and OSHA requirements  3.5 Man lift crane is moved from the work area to the yard in accordance with operator’s safety manual and current traffic act. |
| 4. Perform crane care and maintenance | 4.1 Man lift crane is maintained according worksite requirement  4.2 General housekeeping procedures are followed according to worksite requirements |

**RANGE**

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| --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details |
| 2. Worksite safety | * PPE * Working at heights * Barricades * Warning, informative and/or prohibitive signs |
| 3. Man lift crane activities | * Assist in construction sites * Assist in maintenance sites * Used in rural and urban areas for reaching power lines |
| 4. Attachments | * Boom * Personnel/equipment carrier * Counter weight * Boom wear plate pads |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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# OPERATE TOWER CRANE

**UNIT CODE:** ENG/OS/MCO/CR/07/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate tower crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting tower crane operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimizing identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Radius is measured as per manufacturers’ load chart specifications  2.3 Ballast the crane base to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications  3.4 The crane block is reeved according to worksite requirements and manufacturer’s specifications  3.5 Counterweights are installed according to worksite requirements and manufacturer’s specifications  3.6 Straight fly jibs are assembled and fitted according to worksite requirements and manufacturer’s specifications |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 4. Conduct tower crane operation | 4.1 Tower crane is moved to the required work area and is positioned for specific operation according to job requirements  4.2 Tower crane activities are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to manufacturers’ specifications and OSHA requirements  4.5 Tower crane is moved from the work area to the yard in accordance with operator’s safety manual and current traffic act. |
| 5. Perform crane care and maintenance | 5.1 Tower crane is maintained according worksite requirement  5.2 Wire ropes and gears are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies inwire ropes and gear are identified and reported according to worksite requirements  5.4 Damaged wire ropes and gear are disposed according to OSHA requirements  5.5 Wire ropes and gears are stored in designated areas according to worksite requirements, manufacturers’ specifications and OSHA requirements  5.6 General housekeeping procedures are followed according to worksite requirements |
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**RANGE**

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| **Variable** | **Range**  *May include but is not limited to:* | |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details | |
| 2. Worksite safety | * PPE * Working at heights * Barricades * Warning, informative and/or prohibitive signs | |
| 3. Attachments | * Counter weight * Counter weight jib * Load jib | |
|  | • | Hook |
|  | • | Lattice boom |
|  | • | Boom heads |
|  | |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted tower crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Tower crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. | Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE MOBILE HARBOR CRANE

**UNIT CODE:** ENG/OS/MCO/CR/08/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate mobile harbor crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting mobile harbor crane operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Radius is measured as per manufacturers’ load chart specifications  2.3 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Crane is directed to position as per lift plan to ensure safe operation according to job requirements  2.5 Appropriate outrigger plates or parking are correctly used to adequately distribute the load according to worksite requirements  2.6 Outrigger parking is checked for adequacy prior to and after lift is taken according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications  3.4 The crane block is reeved according to worksite requirements and manufacturer’s specifications  3.5 Counterweights are installed according to manufacturer’s specifications  3.6 Straight fly jibs are assembled and fitted according to worksite requirements and manufacturer’s specifications |
| 4. Conduct mobile harbor crane operation | 4.1 Mobile harbor crane is moved to the required work area and is positioned for specific operation according to job requirements  4.2 Mobile harbor crane activities are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to OSHA requirements  4.5 Mobile harbor crane is moved from the work area to the yard in accordance with operator’s safety manual |
| 5. Perform crane care and maintenance | 5.1 Mobile harbor crane is maintained according worksite requirement and manufacturers’ specifications  5.2 Wire ropes and gears are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in wire ropes and gear are identified and reported according to worksite requirements  5.4 Damaged wire ropes and gear are disposed according to OSHA requirements  5.5 Wire ropes and gears are stored in designated areas according to  worksite requirements, manufacturers’ specifications and OSHA requirements  5.6 General housekeeping procedures are followed according to worksite requirements |

**RANGE**

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| --- | --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* | |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details | |
| 2. Worksite safety | * PPE * Working at heights * Barricades * Warning, informative and/or prohibitive signs | |
| 3. Attachments | * wire rope * hook * jibs | |
|  | • | hydraulic cylinder |
|  | • | Counter weight |
|  | • | Block |
|  | • | Pulley |
|  | • | Boom wear pads |
|  | • | Boom heads |
|  | |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

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| --- | --- | --- |
| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted mobile harbor crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Mobile harbor crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. | Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE RAIL MOUNTED GANTRY CRANE

**UNIT CODE:** ENG/OS/MCO/CR/09/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate rail mounted gantry crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting rail mounted gantry crane operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Rail is checked to ensure it is firm enough to bear the load according to job requirements  2.3 Crane is directed to position as per lift plan to ensure safe operation according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications |
| 4. Conduct rail mounted gantry crane operation | 4.1 Rail mounted gantry crane is moved along the rail to the required work area and is positioned for specific operation according to job requirements  4.2 ***Rail mounted gantry crane activities*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to manufacturers’ specifications and OSHA requirements |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 5. Perform crane care and maintenance | 5.1 Rail mounted gantry craneis maintained according worksite requirement  5.2 Wire ropes are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencie***s*** in wire ropes are identified and reported according to worksite requirements  5.4 Damaged wire ropes are disposed according to manufacturers’ specifications and OSHA requirements  5.5 General housekeeping procedures are followed according to worksite requirements |
|  |  |

**RANGE**

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| --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details |
| 2. Worksite safety | * PPE * Working at heights * Warning, informative and/or prohibitive signs |
| 3. Attachments | * Auxiliary winch * Headblock/mother spreader * Spreader * Boom hook/Hook beam * Auxiliary winch * Spreader/hook * Hook blocks and balls |
| 4. Rail mounted gantry crane activities | * Loading containers in port * Unloading containers in port |
|  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted rail mounted gantry crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | The following resources should be provided:   * Rail mounted gantry crane * PPE * Working site |
| 3. Methods of Assessment | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. Context of  Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. Guidance  information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE RUBBER TYRED GANTRY CRANE

**UNIT CODE:** ENG/OS/MCO/CR/10/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate rubber tyred gantry crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting rubber tyred gantry crane operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Ground is checked to ensure it is firm enough to bear the load according to job requirements  2.3 Crane is directed to position as per lift plan to ensure safe operation according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications |
| 4. Conduct rubber tyred gantry crane operation | 4.1 Rubber tyred gantry crane is moved to the required work area and is positioned for specific operation according to job requirements  4.2 ***Rubber tyred gantry crane operations*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to manufacturers’ specifications and OSHA requirements |
| 5. Perform crane care and maintenance | 5.1 Rubber tyred gantry crane is maintained according worksite requirement  5.2 Wire ropes are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in wire ropesare identified and reported according to worksite requirements  5.4 Damaged wire ropesare disposed according to manufacturers’ specifications andOSHA requirements  5.5 General housekeeping procedures are followed according to worksite requirements |
|  |  |

**RANGE**

|  |  |
| --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details |
| 2. Worksite safety | * PPE * Working at heights * Warning, informative and/or prohibitive signs |
| 3. Rubber tyred gantry crane operations | * Operations to ground or stack containers * Store containers for future pickup |
| 4. Attachments | * Auxiliary winch * Headblock/mother spreader * Spreader * Boom hook/Hook beam * Spreader * Auxiliary winch * Head block |
|  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted rubber tyred gantry crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | The following resources should be provided:   * Rubber tyred gantry crane * PPE * Working site |
| 3. Methods of Assessment | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. Context of  Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. Guidance  information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE SHIP TO SHORE GANTRY CRANE

**UNIT CODE:** ENG/OS/MCO/CR/11/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate ship to shore gantry crane. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting ship to shore gantry crane operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements  1.5 Affected parties are informed and liaised with according to work site requirements. |
| 2. Monitor crane positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Crane is directed to position as per lift plan to ensure safe operation according to job requirements |
| 3. Assemble the crane | 3.1 Crane ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to  worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications |
| 4. Conduct ship to shore gantry crane operation | 4.1 Ship to shore gantry crane is moved to the required work position and is positioned for specific operation according to job requirements |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
|  | 4.2 ***Ship to shore gantry crane operations*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to OSHA requirements and manufacturer’s specifications |
| 5. Perform crane care and maintenance | 5.1 Ship to shore gantry crane is maintained according worksite requirement  5.2 Wire ropes are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in wire ropes are identified and reported according to worksite requirements  5.4 Damaged wire ropes are disposed according to OSHA and manufacturers’ specifications requirements  5.5 General housekeeping procedures are followed according to worksite requirements |
|  |  |

**RANGE**

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| --- | --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* | |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details | |
| 2. Worksite safety | * PPE * Working at heights * Warning, informative and/or prohibitive signs | |
| 3. Attachments | * Auxiliary winch * Headblock/mother spreader * Spreader * Boom hook/Hook beam * Spreader * Auxiliary winch * Head blocks * Boom * Power cable reels | |
|  | • | Boom hook |
|  | • | Festoon cable |
| 4. Ship to shore gantry crane operations | •  • | Loading shipping containers  Unloading shipping containers |
|  | • | Moving the container stack in container terminals. |
|  |  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |  |
| --- | --- | --- |
| 1. Critical Aspects of Competency | | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted ship to shore gantry crane operation * Performed crane care and maintenance |
| 2. Resource  Implications | | The following resources should be provided:   * Ship to shoregantry crane * PPE * Working site |
| 3. Methods of Assessment | | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. | Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. | Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE REACHSTACKER MACHINE

**UNIT CODE:** ENG/OS/MCO/CR/12/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate reach stacker machines. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting reach stacker machines operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements |
| 2. Monitor stacker positioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Load calculation as per manufacturers’ load chart specifications  2.3 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.4 Reachstacker machines is directed to position as per lift plan to ensure safe operation according to job requirements  2.5 Reachstacker machines is parked according to job requirement |
| 3. Assemble the reachstacker attachment | 3.1 Reachstacker machines ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications  3.3 Correct attachment procedure is identified and applied according to worksite requirements and manufacturer’s specifications  3.4 Counterweights are installed or adjusted according to worksite requirements and manufacturer’s specifications |
| 4. Conduct reachstacker machines operation | 4.1 Reachstacker machines is moved to the required work area and is positioned for specific operation according to job requirements  4.2 ***Reachstacker machines activities*** are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements  4.4 Safe working procedures are followed according to OSHA requirements and manufacturer’s specifications |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
|  | 4.5 Reachstacker machines is moved from the work area to the yard in accordance with operator’s safety manual and current traffic act. |
| 5. Perform reachstacker machines care and maintenance | 5.1 Reachstacker machines is maintained according worksite requirement and manufacturer’s specifications  5.2 Telescopic boom and spreader attachment are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in telescopic boom and spreader attachment are identified and reported according to worksite requirements  5.4 Damaged telescopic boom and spreader attachment are disposed according to manufacturer’s specifications  5.5 General housekeeping procedures are followed according to worksite requirements |
|  |  |

**RANGE**

|  |  |
| --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details |
| 2. Worksite safety | * PPE * Working at heights * Warning, informative and/or prohibitive signs |
| 3. Attachments | * Spreader * Auxiliary winch * Head blocks * Boom * Power cable reels * Boom hook * Festoon cable |
| 4. Reachstacker machines activities | * Transport a container * Empty stackers or empty container handlers |
|  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted reachstacker machinesoperation * Performed crane care and maintenance |
| 2. Resource  Implications | The following resources should be provided:   * Reachstacker machines * PPE * Working site |
| 3. Methods of Assessment | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. Context of  Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. Guidance  information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# OPERATE EMPTY CONTAINER HANDLER (ECH)

**UNIT CODE:** ENG/OS/MCO/CR/13/6/A

**UNIT DESCRIPTION:**

This unit describes competencies required to operate empty container handler. It involves planning for work activities, monitoring crane positioning, assembling the crane, conducting empty container handler operation and performing crane care and maintenance.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA**  ***(Bold and italicized terms are elaborated in the Range)*** |
| 1. Plan for work  activities | 1.1 ***Work instructions*** are interpreted.  1.2 Plans for eliminating, avoiding and/or minimising identified risks are developed according to ***worksite safety*** requirements.  1.3 Sequence of operations is determined according to job requirements.  1.4 Required equipment is selected according to job requirements |
| 2. Monitor empty container handlerpositioning | 2.1 Manufacturers’ specifications and guidelines are interpreted and confirmed  2.2 Topography is checked to ensure it is firm enough to bear the load according to job requirements  2.3 Empty container handler is directed to position as per lift plan to ensure safe operation according to job requirements |
| 3. Assemble the empty container handler | 3.1 Empty container handler ***attachments*** are identified according to job requirements  3.2 Selected attachments are inspected for faults and defects to worksite requirements and manufacturer’s specifications 3.3 Correct attachment procedure is identified and applied  according to worksite requirements and manufacturer’s specifications  3.4 Counterweights are installed according to worksite requirements and manufacturer’s specifications |
| 4. Conduct empty container handler operation | 4.1 Empty container handler is moved to the required work area and is positioned for specific operation according to job requirements  4.2 Empty container handler activities are performed within industry accepted timeframes and job requirements  4.3 Unexpected circumstances are dealt with according to worksite requirements |
|  | 4.4 Safe working procedures are followed according to OSHA requirements and manufacturer’s specifications  4.5 Empty container handler is moved from the work area to the  yard in accordance with operator’s safety manual and current traffic act. |
| 5. Perform empty container handler care and maintenance | 5.1 Empty container handler is maintained according worksite requirement  5.2 Spreader and top-mast boom are lubricated according to worksite requirements and manufacturers’ specifications  5.3 Deficiencies in spreader and top-mast boomare identified and reported according to worksite requirements  5.4 Damaged spreader and top-mast boom is disposed according to OSHA requirements  5.5 General housekeeping procedures are followed according to worksite requirements |
|  |  |

**RANGE**

|  |  |
| --- | --- |
| **Variable** | **Range**  *May include but is not limited to:* |
| 1. Work instructions | * Plans * Specifications * Quality requirements * Traffic Control requirements * Task risk assessment forms * Operational details |
| 2. Worksite safety | * PPE * Working at heights * Warning, informative and/or prohibitive signs |
| 3. Attachments | * Spreader * Auxiliary winch * Head blocks * Boom * Power cable reels * Boom hook * Festoon cable |
|  |  |

**REQUIRED KNOWLEDGE**

* Set-up procedures according to manufacturers’ specifications
* Hazards such as overhead obstructions, power lines and underground obstacles
* Requirements of the job such as radius, crane dimensions and load weight and dimensions
* Technical drawings and knowledge of geometry skills
* Statutory and site requirements for issues such as soft and unstable ground conditions

**SKILLS**

* Communication
* Team work and problem solving
* Planning and organising
* Self-management
* Technology

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate   * Planned for work activities * Monitored crane positioning * Assembled the crane * Conducted empty container handler operation * Performed crane care and maintenance |
| 2. Resource  Implications | The following resources should be provided:   * Empty container handler * PPE * Working site |
| 3. Methods of Assessment | Competency may be assessed through:  3.1 Written text  3.2 Interview  3.3 Assignment and Completion of tasks  3.4 Observation |
| 4. Context of  Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 5. Guidance  information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |