

**REPUBLIC OF KENYA**

**OCCUPATIONAL STANDARDS**

**FOR**

**RIGGER**

**KNQF LEVEL 3**

**PROGRAMME ISCED CODE: 0715254A**

# **FOREWORD**

The provision of quality education and training is fundamental to the Government’s overall strategy for social economic development. Quality education and training is the master key meant to unlock Kenya’s development blue print and sustainable development goals.

To achieve Kenya Vision 2030, meet the provisions of the Constitution of Kenya 2010 many reforms in the education sector have been necessary. The education sector had to be aligned to the Constitution 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 Technical, Vocational Education and Training (TVET) training. The reforms require that training in TVET be competency based, curriculum development be industry led, certification be based on demonstration of competence and adoption of mode of delivery that allows for multiple entry and exit in TVET programs.

These reforms demand that industry takes a leading role in development of occupational standard (OS) to ensure that the curriculum developed imparts competences needed by the industry.

It is my conviction that this OS will play a great role towards development of competent human resource for sustainable growth and development in the rigging industry.

# **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. Technical, Vocational Education and Training (TVET) institutions have 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 TVET Act Cap 210A of 2013 on Reforming Education and Training in Kenya emphasized the need toreform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labor force.

This OS is designed and organized with an outline of elements; performance criteria, training/learning resources and methods of assessing the trainee’s achievement. It also allows multiple entry and exit to the course.

I am grateful to the Council Members, Council Secretary, industrial experts in rigging, experienced trainers and all those who participated in the development of this OS.

# **ACRONYMS**

CBET Competency Based Education and Training

OS Occupational Standards

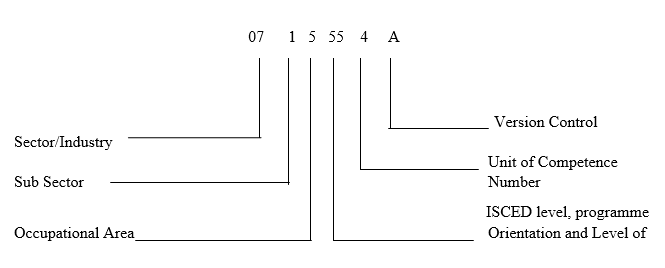
PPE Personal Protective Equipment

TVETA Technical Vocational Education and Training

KNQF Kenya National Qualifications Framework

PPE Personal Protective Equipment

# **KEY TO UNIT CODE**



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# **OVERVIEW**

The OS for Rigger Level 3 consists of competences that an individual must achieve when carrying out rigging. This is done by adhering to rigging equipment operations manufacturer’s manual, rigging equipment maintenance manual and Occupational Health and Safety Act (2007) to ensure quality rigging while promoting rigging personnel safety and welfare. The individual will be able to apply knowledge of rigging equipment operation, load attachment and lifting methods; and the rigging hazards while conducting rigging activities, rigging equipment maintenance and inspection. According to their experience and personal capacities, the person will assume one or more of the above responsibilities.

The units of competency comprising this qualification include the following core competences:

# **SUMMARY OF UNITS OF COMPETENCY**

|  |  |
| --- | --- |
| **UNITS OF COMPETENCY** | |
| **UNIT CODE** | **UNIT TITLE** |
| 0715 251 01A | Perform Pre- Rigging Activities |
| 0715 251 02A | Perform Rigging Activities |

# **PERFORM PRE- RIGGING ACTIVITIES**

**UNIT CODE:** 0715 251 01A

**UNIT DESCRIPTION**

This unit describes competences required by a rigger to perform pre-rigging activities. This involves conducting rigging planning, carrying out rigging site preparation and conducting rigging load assessment.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace functions | **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 rigging planning | * 1. ***Rigging operations*** are identified as per work plan.   2. ***Rigging resources*** are mobilised as per work plan   3. Rigging safety procedures are identified as per work plan   4. ***Work permits*** are obtained as per work plan. |
| 1. Carry out rigging site preparation | * 1. ***Rigging PPE*** are identified as per work requirement   2. Rigging PPE are donned as per work requirement   3. Rigging ***site hazard assessment*** is conducted as per work requirement   4. ***Rigging site preparation*** is carried out as per work requirement |
| 1. Conduct rigging load assessment | * 1. ***Load condition*** is identified as per work requirement   2. ***Load shape*** is identified as per work requirement   3. ***Rigging attachments points*** are identified as per work requirement   4. ***Slinging methods*** are selected as per the work plan.   5. Rigging load assessment records are prepared as per work procedure |

**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**  **May include but not limited to;** |
| --- | --- |
| 1. ***Rigging operations*** may include but not limited to:- | * 1. Rigging Load handling   2. Lifting operations   3. Equipment Assembly   4. Equipment Disassembly   5. Load handling |
| 1. ***Rigging resources*** may include but not limited to:- | * 1. Rigging equipment and gear   2. Rigging support accessories   3. Rigging personnel |
| 1. ***Work permits*** may include but not limited to:- | * 1. Confined Space Entry Permit   2. Working at heights   3. Hot works permit   4. Excavation permits   5. Cold Work Permit   6. Chemical Handling/Storage Permit |
| 1. ***Rigging PPE*** may include but not limited to:- | * 1. Safety helmets   2. Safety goggles   3. Face shields   4. Earplugs   5. Ear muffs   6. Dust masks/Respirators   7. Rigging gloves   8. Safety boots   9. Reflector jackets   10. Overalls |
| 1. ***Rigging site hazards*** may include but not limited to:- | * 1. Chemical hazards   2. Mechanical hazards   3. Physical hazards   4. Electrical hazards   5. Psychosocial hazards   6. Ergonomic hazards |
| 1. ***Rigging site preparation*** may include but not limited to:- | * 1. Site clearing   2. Site Demarcation   3. Grounds works   4. Site marking out   5. Equipment mobilization |
| 1. ***Load condition*** may include but not limited to:- | * 1. Load labelling   2. Status of the load   3. Hazardous status   4. Fragile load |
| 1. ***Load shape*** may include but not limited to:- | * 1. Symmetrical Loads   2. Asymmetrical Loads   3. Long, Cylindrical, or Pipe-Shaped Loads   4. Flat or Rectangular Loads   5. Irregularly Shaped Loads |
| 1. ***Rigging attachments points*** may include but not limited to:- | * 1. Eye bolts/ Lift eyes   2. Lifting lugs   3. Swivel Hoist rings   4. Weld on lifting points   5. Mounting brackets   6. Lift rings   7. Beam clamps   8. Hook and shackle points   9. Corners and edges of loads |
| 1. ***Slinging methods*** may include but not limited to:- | * 1. Single leg sling   2. Double leg sling   3. Multiple leg slinging   4. Choker/choking hitch   5. Basket hitch   6. Vertical hitch   7. Bridle hitch |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Rigging operations
* Rigging resources
* Safety procedures
* Slinging methods
* Science of rigging
* Trade theory
* Trade practice
* Rigging mathematics
* Safety procedures
* Planning
* Mensuration
* Rigging methods
* Rigging tools and equipment

**Required skills**

The individual needs to demonstrate the following skills:

* Rigging operations
* Slinging
* Load assessment
* Hazard assessment
* Communication skills
* Problem solving
* Organizational skills
* Time management
* Digital skills
* Critical thinking
* Numeracy skills

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Identified rigging operations as per work plan.   2. Identified rigging safety procedures as per work plan   3. Obtained workpermits as per work plan.   4. Conducted rigging site hazard assessment as per work requirement   5. Carried out rigging site preparation as per work requirement   6. Identified load condition as per work requirement   7. Identified rigging attachments pointsare as per work requirement   8. Selected slinging methods as per the work plan. |
| 1. Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 1. Methods of assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Project   3. Oral assessment   4. Third party report   5. Written tests   6. Case study |
| 1. Context of assessment | Competency may be assessed in the workplace or simulated workplace |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# PERFORM RIGGING ACTIVITIES

**UNIT CODE:** 0715 251 02A

**UNIT DESCRIPTION**

This unit describes competences required by a rigger to perform rigging activities. This involves carrying out rigging equipment set-up, conducting rigging load attachment, carrying out load lifting and carrying out lifting equipment demobilization.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace functions | **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. Carry out rigging equipment set-up | * 1. ***Rigging equipment set up hazards*** are identified as per work requirement   2. ***Rigging equipment set up hazards control measures*** are effected as per work requirement   3. ***Rigging equipment*** selection is carried out as per work requirement   4. ***Rigging equipment visual assessment*** is carried out as per work requirement   5. Rigging gearsare attachedas per manufacturer’s manual |
| 1. Conduct rigging load attachment | * 1. ***Rigging load attachment hazards*** are identified as per work requirement   2. ***Rigging load attachment hazards control measures*** are affected as per work requirement.   3. ***Rigging communication signal*** is relayed as per work requirement.   4. Slinging is carried out as per work requirement |
| 1. Carry out load lifting | * 1. ***Load lifting hazards*** are identified as per work requirement   2. ***Load lifting hazards control measures*** are effected as per work requirement   3. Lifting communication signals are relayed as per work requirement   4. Test liftingis carried out as per work as per work requirement.   5. ***Load lifting operation control*** is carried out as per work procedure   6. ***Rigging load decking*** ***control*** is carried out as per work procedure |
| 1. Carry out lifting equipment demobilization | * 1. ***Lifting equipment demobilization hazards*** are identified as per work requirement   2. ***Lifting equipment demobilization hazards control measures*** are effected as per work requirement   3. Detachment of slings is carried out as per work requirement   4. ***Rigging load lifting area clearing*** is carried out as per work requirement   5. ***Rigging equipment storage*** is carried out as per work requirement   6. Rigging completion record is prepared as per work procedure |

**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**  **May include but not limited to;** |
| --- | --- |
| 1. ***Rigging equipment set up hazards*** may include but not limited to: - | * 1. Chemical hazards   2. Mechanical hazards   3. Physical hazards   4. Electrical hazards   5. Psychosocial hazards   6. Ergonomic hazards |
| 1. ***Rigging equipment set up hazards control measures*** may include but not limited to: - | * 1. Elimination   2. Substitution   3. Use of PPE   4. Engineering controls   5. Administrative |
| 1. ***Rigging equipment*** selection may include but not limited to: - | * 1. Lifting Slings   2. Shackles   3. Hooks   4. Lifting beams and spreaders   5. Hoist   6. Cranes   7. Pulley system (Block and Tackle)   8. Winches   9. Slings and lifting points   10. Taglines |
| 1. ***Rigging equipment visual assessment*** may include but not limited to: - | * 1. Colour/Physical appearance   2. Checking for defects   3. Checking for missing parts   4. Check for compliance with regulations |
| 1. ***Rigging load attachment hazards*** may include but not limited to: - | * 1. Chemical hazards   2. Mechanical hazards   3. Physical hazards   4. Electrical hazards   5. Psychosocial hazards   6. Ergonomic hazards |
| 1. ***Rigging load attachment hazards control measures*** may include but not limited to: - | * 1. Elimination   2. Substitution   3. Use of PPE   4. Engineering controls   5. Administrative controls |
| 1. ***Rigging communication signal*** may include but not limited to:- | * 1. Hand signals   2. Radio communication   3. Whistle signals   4. Visual signals (flags and lights)   5. Signage |
| 1. ***Load lifting hazards*** may include but not limited to: - | * 1. Chemical hazards   2. Mechanical hazards   3. Physical hazards   4. Electrical hazards   5. Psychosocial hazards   6. Ergonomic hazards |
| 1. ***Load lifting hazards control measures*** may include but not limited to: - | * 1. Elimination   2. Substitution   3. Use of PPE   4. Engineering controls   5. Administrative controls |
| 1. ***Load lifting operation control*** may include but not limited to: - | * 1. Use of taglines   2. Lifting equipment manipulation   3. Proper lifting signalling |
| 1. ***Rigging load decking control*** may include but not limited to: - | * 1. Use of taglines   2. Lifting equipment manipulation   3. Proper decking signaling |
| 1. ***Lifting equipment demobilization hazards*** ***may include but not limited to:-*** | * 1. Chemical hazards   2. Mechanical hazards   3. Physical hazards   4. Electrical hazards   5. Psychosocial hazards   6. Ergonomic hazards |
| 1. ***Lifting equipment demobilization hazards control measures*** may include but not limited to: - | * 1. Elimination   2. Substitution   3. Use of PPE   4. Engineering controls   5. Administrative controls |
| 1. ***Rigging load lifting area clearing*** may include but not limited to: - | * 1. Assess the Lifting Area   2. Remove Mark Safe Work Zones   3. Remove or Secure Loose Materials   4. Removal of equipment |
| 1. ***Rigging equipment storage*** may include but not limited to: - | * 1. Cleaning   2. Inspection   3. Segregation   4. Labelling   5. Climate controlled storage   6. Outdoor storage   7. Using hang or roll slings   8. Use of racks   9. Use of bins   10. Use of drawers |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Rigging support accessories
* Statutory documents
* Safety procedures
* Rigging equipment and gears
* Rigging equipment post-attachment tests
* Rigging communication signals
* Slinging methods
* Load lifting procedure
* Rigging equipment storage
* Science of rigging
* Trade theory
* Trade practice
* Rigging mathematics

**Required skills**

The individual needs to demonstrate the following skills:

* Analytical skills
* Risk assessment
* Rigging equipment assessment
* Slinging
* Rigging signaling
* Rigging equipment mobilization and demobilization

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   * 1. Effected rigging equipment set up hazards control measures as per work requirement   2. Selected rigging equipment as per work requirement   3. Attachedrigging gears ***as*** per manufacturer’s manual   4. Relayed rigging communication signal as per work requirement.   5. Carried out slinging as per work requirement   6. Effectedload lifting hazards control measures as per work requirement   7. Relayed lifting communication signals as per work requirement   8. Carried out load lifting operation control as per work procedure   9. Carried out slings detachment as per work requirement   10. Carried out rigging load lifting area clearing as per work requirement   11. Carried out rigging equipment storage as per work requirement |
| 1. Resource implications | The following resources should be provided:   * 1. Appropriately simulated environment where assessment can take place   2. Access to relevant work environment   3. Resources relevant to the proposed activities or tasks |
| 1. Methods of assessment | Competency in this unit may be assessed through:   * 1. Practical assessment   2. Project   3. Third party report   4. Written tests   5. Oral assessment |
| 1. Context of assessment | Competency may be assessed in the workplace or simulated workplace |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |