TRAINING REGULATIONS

Rigging - NC I

CONSTRUCTION SECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Superhighway, Taguig City, Metro Manila

TABLE OF CONTENTS

CONSTRUCTION - HEAVY EQUIPMENT SUB-SECTOR
HEAVY EQUIPMENT OPERATION - RIGGING NC I

TRAINING REGULATIONS FOR

HEAVY EQUIPMENT OPERATION - RIGGING NC I

SECTION 1 HEAVY EQUIPMENT OPERATION - RIGGING NC I

The **HEAVY EQUIPMENT OPERATION - RIGGING NC I** qualification consists of competencies that workers must achieve to enable them to perform tasks such inspecting, and installing rigging gears and guiding crane operators in construction sites or other locations.

This qualification is packaged from the competency map of Construction - Heavy Equipment sub-sector as shown in Annex A.

The units of competency comprising this qualification include the following:

CODE NO.	**BASIC COMPETENCIES**
	Units of Competency
500311101	Receive and respond to workplace communication
500311102	Work with others
500311103	Demonstrate work values
500311104	Practice housekeeping procedures

CODE NO.	**COMMON COMPETENCIES**
	Units of Competency
CON931201	Prepare construction materials and tools
CON311201	Observe procedures, specifications and manuals of instruction
CON311203	Perform mensurations and calculations
CON311204	Maintain tools and equipment

CODE NO.	**CORE COMPETENCIES**
CON721301	Inspect rigging gears
CON721302	Install rigging gears
CON721303	Assist crane operator

A person who has achieved this Qualification is competent to be a -

Rigger

SECTION 2 COMPETENCY STANDARDS

This section gives the details and contents of the core units of competency required in **HEAVY EQUIPMENT OPERATION - RIGGING NC I**. These units of competency are categorized into basic, common and core competencies.

BASIC COMPETENCIES

UNIT OF COMPETENCY:	**RECEIVE AND RESPOND TO WORKPLACE COMMUNICATION**
UNIT CODE :	**500311101**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes required to receive, respond and act on verbal and written communication.

ELEMENT	PERFORMANCE CRITERIA ***Bold and italicized*** terms are elaborated in the Range of Variables
1. Follow routine spoken messages	1.1 Required information is gathered by listening attentively and correctly interpreting or understanding information/instructions 1.2 Instructions/information are properly recorded 1.3 Instructions are acted upon immediately in accordance with information received 1.4 Clarification is sought from workplace supervisor on all occasions when any instruction/information is not clear
2. Perform workplace duties following written notices	2.1 ***Written notices and instructions*** are read and interpreted correctly in accordance with **organizational guidelines** 2.2 Routine written instruction are followed in sequence 2.3 Feedback is given to workplace supervisor based on the instructions/information received

RANGE OF VARIABLES

VARIABLE	RANGE
1. Written notices and instructions	It refers to : 1.1 Handwritten and printed material 1.2 Internal memos 1.3 External communications 1.4 Electronic mail 1.5 Briefing notes 1.6 General correspondence 1.7 Marketing materials 1.8 Journal articles
2. Organizational Guidelines	It may include: 2.1 Information documentation procedures 2.2 Company policies and procedures 2.3 Organization manuals 2.4 Service manual

EVIDENCE GUIDE

1. Critical aspects of Competency	Assessment requires evidence that the candidate*:* 1.1 Demonstrated knowledge of organizational procedures for handling verbal and written communications 1.2 Received and acted on verbal messages and

	instructions 1.3 Demonstrated competency in recording instructions/information
2. Underpinning Knowledge and Attitudes	2.1 Knowledge of organizational policies/guidelines in regard to processing internal/external information 2.2 Ethical work practices in handling communications 2.3 Communication process
3. Underpinning Skills	3.1 Conciseness in receiving and clarifying messages/information/communication 3.2 Accuracy in recording messages/information
4. Resource Implications	The following resources MUST be provided: 4.1 Pens 4.2 Note pad
5. Methods of Assessment	Competency may be assessed through: 5.1 Direct Observation 5.2 Oral interview 5.3 Written Evaluation 5.4 Third Party Report
6. Context of Assessment	6.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions

UNIT OF COMPETENCY:	**WORK WITH OTHERS**
UNIT CODE :	**500311102**
UNIT DESCRIPTOR :	This unit covers the skills, knowledge and attitudes required to develop workplace relationship and contribute in workplace activities

ELEMENT	PERFORMANCE CRITERIA ***Bold and italicized*** terms are elaborated in the Range of Variables
1. Develop effective workplace relationship	1.1 ***Duties and responsibilities*** are done in a positive manner to promote cooperation and good relationship 1.2 Assistance is sought from ***workgroup*** when difficulties arise and addressed through discussions 1.3 ***Feedback*** provided by others in the team is encouraged, acknowledged and acted upon 1.4 Differences in personal values and beliefs are respected and acknowledged in the development
2. Contribute to work group activities	2.1 ***Support is provided to team members*** to ensure workgroup goals are met 2.2 Constructive contributions to workgroup goals and tasks are made according to ***organizational requirements*** 2.3 Information relevant to work is shared with team members to ensure designated goals are met

RANGE OF VARIABLES

VARIABLE	*RANGE*
1. Duties and responsibilities	1.1 Job description and employment arrangements 1.2 Organization's policy relevant to work role 1.3 Organizational structures

	1.4 Supervision and accountability requirements including OHS 1.5 Code of conduct
2. Work group	2.1 Supervisor or manager 2.2 Peers/work colleagues 2.3 Other members of the organization
3. Feedback on performance	3.1 Formal/Informal performance appraisal 3.2 Obtaining feedback from supervisors and colleagues and clients 3.3 Personal, reflective behavior strategies 3.4 Routine organizational methods for monitoring service delivery
4. Providing support to team members	4.1 Explaining/clarifying 4.2 Helping colleagues 4.3 Providing encouragement 4.4 Providing feedback to another team member 4.5 Undertaking extra tasks if necessary
5. Organizational requirements	5.1 Goals, objectives, plans, system and processes 5.2 Legal and organization policy/guidelines 5.3 OHS policies, procedures and programs 5.4 Ethical standards 5.5 Defined resources parameters 5.6 Quality and continuous improvement processes and standards

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Provided support to team members to ensure goals are met 1.2 Acted on feedback from clients and colleagues 1.3 Accessed learning opportunities to extend own personal work competencies to enhance team goals and outcomes

2. Underpinning Knowledge	2.1 The relevant legislation that affects operations, especially with regards to safety 2.2 Reasons why cooperation and good relationships are important 2.3 Knowledge of the organization's policies, plans and procedures 2.4 Understanding how to elicit and interpret feedback 2.5 Knowledge of workgroup member's responsibilities and duties 2.6 Importance of demonstrating respect and empathy in dealings with colleagues 2.7 Understanding of how to identify and prioritize personal development opportunities and options
3. Underpinning Skills	3.1 Ability to read and understand the organization's policies and work procedures 3.2 Write simple instructions for particular routine tasks 3.3 Interpret information gained from correspondence 3.4 Communication skills to request advice, receive feedback and work with a team 3.5 Planning skills to organized work priorities and arrangement 3.6 Technology skills including the ability to select and use technology appropriate to a task 3.7 Ability to relate to people from a range of social, cultural and ethnic backgrounds.

4. Resource Implications	The following resources **MUST** be provided: 4.1 Access to relevant workplace or appropriately simulated environment where assessment can take place 4.2 Materials relevant to the proposed activity or task
5. Methods of Assessment	Competency may be assessed through: 5.1 Direct observations of work activities of the individual member in relation to the work activities of the group 5.2 Observation of simulation and/or role play involving the participation of individual member to the attainment of organizational goal 5.3 Case studies and scenarios as a basis for discussion of issues and strategies
6. Context for Assessment	6.1 Competency assessment may occur in workplace or any appropriately simulated environment 6.2 Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY:	**DEMONSTRATE WORK VALUES**
UNIT CODE :	**50031103**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills, and attitude in demonstrating proper work values.

ELEMENT	PERFORMANCE CRITERIA ***Bold and italicized*** terms are elaborated in the Range of Variables
1. Define the purpose of work	1.1 One's unique sense of purpose for working and the why's of work are identified, reflected on and clearly defined for one's development as a person and as a member of society. 1.2 Personal mission is in harmony with company's values
2. Apply work values/ethics	2.1 ***Work values/ethics/concepts*** are classified and reaffirmed in accordance with the transparent company ethical standards, policies and guidelines 2.2 ***Work practices*** are undertaken in compliance with industry work ethical standards, organizational policy and guidelines 2.3 Personal behavior and relationships with co-workers and/or clients are conducted in accordance with ethical standards, policy and guidelines 2.4 ***Company resources*** are used in accordance with transparent company ethical standard, policies and guidelines
3. Deal with ethical problems	3.1 Company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct are accessed and applied in accordance with transparent company ethical standard, policies and guidelines 3.2 ***Work incidents/situations*** are reported and/or resolved in accordance with company protocol / guidelines 3.3 Resolution and/or referral of ethical problems identified are used as learning opportunities
4. Maintain integrity of conduct in the workplace	4.1 Personal work practices and values are demonstrated consistently with acceptable ethical conduct and company's core values 4.2 ***Instructions*** to co-workers are provided based on ethical, lawful and reasonable directives 4.3 Company values/practices are shared with co-workers using appropriate behavior and language

RANGE OF VARIABLES

VARIABLE	RANGE

1. Work values / ethics / concepts	May include but are not limited to: 1.1 Commitment/ Dedication 1.2 Sense of urgency 1.3 Sense of purpose 1.4 Love for work 1.5 High motivation 1.6 Orderliness 1.7 Reliability 1.8 Competence 1.9 Dependability 1.10 Goal-oriented 1.11 Sense of responsibility 1.12 Being knowledgeable 1.13 Loyalty to work/company 1.14 Sensitivity to others 1.15 Compassion/Caring attitude 1.16 Balancing between family and work 1.17 Pakikisama 1.18 Bayanihan spirit/teamwork 1.19 Sense of nationalism
2. Work practices	2.1 Quality of work 2.2 Punctuality 2.3 Efficiency 2.4 Effectiveness 2.5 Productivity 2.6 Resourcefulness 2.7 Innovativeness/Creativity 2.8 Cost conciousness 2.9 5S 2.10 Attention to details
3. Incidents/situations	3.1 Violent/intensed dispute or argument 3.2 Gambling 3.3 Use of prohibited substances 3.4 Pilferages 3.5 Damage to person or property 3.6 Vandalism 3.7 Falsification 3.8 Bribery 3.9 Sexual Harassment 3.10 Blackmail

4. Company resources	4.1 Consumable materials 4.2 Equipment/Machineries 4.3 Human 4.4 Time 4.5 Financial resources
5. Instructions	5.1 Verbal 5.2 Written

EVIDENCE GUIDE

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Defined one's unique sense of purpose for working 1.2 Clarified and affirmed work values/ethics/concepts consistently in the workplace 1.3 Demonstrated work practices satisfactorily and consistently in compliance with industry work ethical standards, organizational policy and guidelines 1.4 Demonstrated personal behavior and relationships with co-workers and/or clients consistent with ethical standards, policy and guidelines 1.5 Used company resources in accordance with company ethical standard, policies and guidelines. 1.6 Followed company ethical standards, organizational policy and guidelines on the prevention and reporting of unethical conduct/behavior
2. Underpinning Knowledge	2.1 Occupational health and safety 2.2 Work values and ethics 2.3 Company performance and ethical standards 2.4 Company policies and guidelines 2.5 Fundamental rights at work including gender sensitivity 2.6 Work responsibilities/job functions 2.7 Corporate social responsibilities 2.8 Company code of conduct/values 2.9 Balancing work and family responsibilities
3. Underpinning Skills	3.1 Interpersonal skills 3.2 Communication skills 3.3 Self awareness, understanding and acceptance 3.4 Application of good manners and right conduct
4. Resource Implications	The following resources **MUST** be provided: 4.1 Workplace or assessment location 4.2 Case studies/Scenarios
5. Methods of Assessment	Competency may be assessed through: 5.1 Portfolio Assessment 5.2 Interview 5.3 Third Party Reports
6. Context of Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY:	**PRACTICE HOUSEKEEPING PROCEDURES**
UNIT CODE :	**500311104**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes required to apply the basic housekeeping procedures.

ELEMENT	PERFORMANCE CRITERIA ***Bold and italicized*** terms are elaborated in the Range of Variables
1. Sort and remove unnecessary items	1.1 Reusable, recyclable materials are sorted in accordance with company/office procedures 1.2 ***Unnecessary items*** are removed and disposed of in accordance with company or office procedures
2. Arrange items	2.1 Items are arranged in accordance with company/office housekeeping procedures 2.2 Work area is arranged according to job requirements 2.3 Activities are prioritized based on instructions. 2.4 Items are provided with clear and visible ***identification marks*** based on procedure 2.5 Safety equipment and evacuation passages are kept clear and accessible based on instructions
3. Maintain work area, tools and equipment	3.1 Cleanliness and orderliness of work area is maintained in accordance with company/office procedures 3.2 Tools and equipment are cleaned in accordance with manufacturer's instructions/manual 3.3 ***Minor repairs*** are performed on tools and equipment in accordance with manufacturer's instruction/manual 3.4 Defective tools and equipment are reported to immediate supervisor
4. Follow standardized work process and procedures	4.1 Materials for common use are maintained in designated area based on procedures 4.2 Work is performed according to standard work procedures 4.3 Abnormal incidents are reported to immediate supervisor
5. Perform work spontaneously	5.1 Work is performed as per instruction 5.2 Company and office ***decorum*** are followed and complied with 5.3 Work is performed in accordance with occupational health and safety (OHS) requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Unnecessary items	May include but are not limited to: 1.1 Non-recyclable materials 1.2 Unserviceable tools and equipment 1.3 Pictures, posters and other materials not related to work activity 1.4 Waste materials
2. Identification marks	2.1 Labels 2.2 Tags 2.3 Color coding
3. Decorum	3.1 Company/ office rules and regulations 3.2 Company/ office uniform 3.3 Behavior
4. Minor repair	Minor repair include but not limited to: 4.1 Replacement of parts 4.2 Application of lubricants 4.3 Sharpening of tools 4.4 Tightening of nuts, bolts and screws

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Practiced the basic procedures of 5S
2. Underpinning Knowledge and Attitudes	2.1 Principles of 5S 2.2 Work process and procedures 2.3 Safety signs and symbols 2.4 General OH&S principles and legislation 2.5 Environmental requirements relative to work safety 2.6 Accident/Hazard reporting procedures
3. Underpinning Skills	3.1 Basic communication skills 3.2 Interpersonal skills 3.3 Reading skills required to interpret instructions 3.4 Reporting/recording accidents and potential hazards
4. Resource Implications	The following resources **MUST** be provided: 4.1 Facilities, materials tools and equipment necessary for the activity
5. Methods of Assessment	Competency must be assessed through: 5.1 Third party report 5.2 Interview 5.3 Demonstration with questioning
6. Context for Assessment	6.1 Competency may be assessed in the work place or in a simulated work place setting

COMMON COMPETENCIES

UNIT OF COMPETENCY:	**PREPARE CONSTRUCTION MATERIALS AND TOOLS**
UNIT CODE :	**CON931201**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes on identifying, requesting and receiving construction materials and tools based on the required performance standards.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variable
1. Identify materials	1.1 ***Materials*** are listed as per job requirements 1.2 Quantity and ***description of materials*** conform with the job requirements 1.3 Tools and accessories are identified according to job requirements
2. Requisition materials	2.1 Materials and tools needed are requested according to the list prepared 2.2 Request is done as per ***company standard operating procedures (SOP)*** 2.3 Substitute materials and tools are provided without sacrificing cost and quality of work
3. Receive and inspect materials	3.1 Materials and tools issued are inspected as per quantity and specification 3.2 Tools, accessories and materials are checked for damages according to enterprise procedures 3.3 Materials and tools are set aside to appropriate location nearest to the workplace

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials and Tools	1.1 Electrical supplies 1.2 Structural 1.3 Plumbing 1.4 Welding/pipefitting 1.5 Carpentry 1.6 Masonry
2. Description of Materials and Tools	2.1 Brand name 2.2 Size 2.3 Capacity 2.4 Kind of application
3. Company standard procedures	3.1 Job order 3.2 Requisition slip 3.3 Borrower slip

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires evidence that the candidate: 1.1 Listed materials and tools according to quantity and job requirements 1.2 Requested materials and tools according to the list prepared and as per company SOP 1.3 Inspected issued materials and tools as per quantity and job specifications 1.4 Tools provided with appropriate safety devices
2. Underpinning knowledge	2.1 Types and uses of construction materials and tools 2.2 Different forms 2.3 Requisition procedures
3. Underpinning skills	3.1 Preparing materials and tools 3.2 Proper handling of tools and equipment 3.3 Following instructions
4. Resource implications	The following resources should be provided: 4.1 Workplace location 4.2 Materials relevant to the unit of competency 4.3 Technical plans, drawings and specifications relevant to the activities
5. Methods of assessment	Competency in this unit must be assessed through: 5.1 Direct observation and oral questioning
6. Context of assessment	6.1 Competency may be assessed in the workplace or in a simulated workplace 6.2 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines

UNIT OF COMPETENCY:	**OBSERVE PROCEDURES, SPECIFICATIONS AND MANUALS OF INSTRUCTIONS**
UNIT CODE :	**CON311201**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes on identifying, interpreting, applying services to specifications and manuals and storing manuals.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Identify and access specification/manuals	1.1 Appropriate manuals are identified and accessed as per job requirements 1.2 Version and date of manual are checked to ensure that correct specification and procedures are identified
2. Interpret manuals	2.1 Relevant sections, chapters of specifications/ manuals are located in relation to the work to be conducted 2.2 Information and procedure in the manual are interpreted in accordance with industry practices
3. Apply information in manual	3.1 *Manual* is interpreted according to job requirements 3.2 Work steps are correctly identified in accordance with manufacturer's specification 3.3 Manual data are applied according to the given task 3.4 All correct sequencing and adjustments are interpreted in accordance with information contained on the manual or specifications
4. Store manuals	4.1 Manual or specification is stored appropriately to prevent damage, ready access and updating of information when required in accordance with company requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Procedures, Specifications and Manuals of Instructions	Kinds of Manuals: 1.1 Manufacturer's Specification Manual 1.2 Repair Manual 1.3 Maintenance Procedure Manual 1.4 Periodic Maintenance Manual

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Identified and accessed specification/manuals as per job requirements 1.2 Interpreted manuals in accordance with industry practices 1.3 Applied information in manuals according to the given task 1.4 Stored manuals in accordance with company requirements
2. Underpinning knowledge	2.1 Types of manuals used in construction sector 2.2 Identification of symbols used in the manuals 2.3 Identification of units of measurements 2.4 Unit conversion
3. Underpinning skills	3.1 Reading and comprehension skills required to identify and interpret construction manuals and specifications 3.2 Accessing information and data
4. Resource implications	The following resources should be provided: 4.1 All manuals/catalogues relative to construction sector
5. Methods of assessment	Competency should be assessed through: 5.1 Direct observation 5.2 Questions/interview Assessment of underpinning knowledge and practical skills may be combined
6. Context of assessment	6.1 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines 6.2 Assessment may be conducted in the workplace or a simulated environment

UNIT OF COMPETENCY:	**PERFORM MENSURATIONS AND CALCULATIONS**
UNIT CODE :	**CON311203**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes on identifying and measuring objects based on the required performance standards.

ELEMENT	PERFORMANCE CRITERIA ***Italicized** terms* are elaborated in the Range of Variable
1. Select measuring instruments	1.1 Object or component to be measured is identified, classified and interpreted according to the appropriate regular ***geometric shape*** 1.2 Measuring tools are selected/identified as per object to be measured or job requirements 1.3 Correct specifications are obtained from relevant sources 1.4 Appropriate measuring instruments are selected according to job requirements 1.5 Alternative measuring tools are used without sacrificing cost and quality of work
2. Carry out measurements and calculations	2.1 Accurate ***measurements*** are obtained according to job requirements 2.3 Alternative measuring tools are used without sacrificing cost and quality of work 2.4 ***Calculation*** needed to complete work tasks are performed using the four basic process of addition (+), subtraction (-), multiplication (x) and division (/) including but not limited to: trigonometric functions, algebraic computations 2.5 Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks 2.6 Numerical computation is self-checked and corrected for accuracy 2.7 Instruments are read to the limit of accuracy of the tool 2.8 Systems of measurement identified and converted according to job requirements/ISO 2.9 Workpieces are measured according to job requirements

RANGE OF VARIABLES

VARIABLE	RANGE
1. Geometric shape	Including but is not limited to: 1.1 Round 1.2 Square 1.3 Rectangular 1.4 Triangle 1.5 Sphere 1.6 Conical
2. Measuring instruments	Including but not limited to: 2.1 Micrometer (In-out, depth) 2.2 Vernier caliper (out, inside) 2.3 Dial gauge with mag, std. 2.4 Straight edge 2.5 Thickness gauge 2.6 Torque gauge 2.7 Small hole gauge 2.8 Telescopic gauge 2.9 Try-square 2.10 Protractor 2.11 Combination gauge 2.12 Steel rule 2.13 Voltmeter 2.14 Ammeter 2.15 Mega-ohmeter 2.16 Kilowatt hour meter 2.17 Gauges 2.18 Thermometers
3. Measurements and calculations	3.1 Linear 3.2 Volume 3.3 Area 3.4 Wattage 3.5 Voltage 3.6 Resistance 3.7 Amperage 3.8 Frequency 3.9 Impedance

VARIABLE	RANGE
	3.10 Conductance 3.11 Capacitance 3.12 Displacement 3.13 Inside diameter 3.14 Circumference 3.15 Length 3.16 Thickness 3.17 Outside diameter 3.18 Taper 3.19 Out of roundness 3.20 Oil clearance 3.21 End play/Thrust clearance

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Selected and prepared appropriate measuring instruments in accordance with job requirements 1.2 Performed measurements and calculations according to job requirements/ ISO
2. Underpinning knowledge	**2.1 TRADE MATHEMATICS / MENSURATION** 2.1.1 Four fundamental operation 2.1.2 Linear measurement 2.1.3 Dimensions 2.1.4 Unit conversion 2.1.5 Ratio and proportion 2.1.6 Trigonometric functions 2.1.7 Algebraic equations
3. Underpinning skills	3.1 Performing calculation by addition, subtraction, multiplication and division; trigonometric functions and algebraic equations 3.2 Visualizing objects and shapes 3.3 Interpreting formulas for volume, areas, perimeters of plane and geometric figures 3.4 Proper handling of measuring instruments
4. Resource implications	The following resources should be provided: 4.1 Workplace location 4.2 Problems to solve 4.3 Measuring instrument appropriate to carry out tasks 4.4 Instructional materials relevant to the propose activity Assessment of underpinning knowledge and practical skills may be combined
5. Methods of assessment	Competency should be assessed through: 5.1 Actual demonstration 5.2 Direct observation 5.3 Written test/questioning related to underpinning knowledge
6. Context of assessment	6.1 Competency assessment may occur in workplace or any appropriate simulated environment 6.2 Assessment shall be observed while task are being undertaken whether individually or in group 6.3 Competency assessment must be undertaken in accordance with the TESDA assessment guidelines

UNIT OF COMPETENCY:	**MAINTAIN TOOLS AND EQUIPMENT**
UNIT CODE :	**CON311204**
UNIT DESCRIPTOR :	This unit covers the knowledge, skills and attitudes on checking condition, performing preventive maintenance and storing of tools and equipment based on the required performance standards.

ELEMENTS	PERFORMANCE CRITERIA ***Italicized*** terms are elaborated in the Range of Variables
1. Check condition of tools and equipment	1.1 ***Materials, tools and equipmen***t are identified according to classification and job requirements 1.2 Non-functional tools and equipment are segregated and labeled according to classification 1.3 Safety of tools and equipment are observed in accordance with manufacturer's instructions 1.4 Condition of ***PPE*** are checked in accordance with manufacturer's instructions
2. Perform basic preventive maintenance	2.1 Appropriate lubricants are identified according to types of equipment 2.2 Tools and equipment are lubricated according to preventive maintenance schedule or manufacturer's specifications 2.2 Measuring instruments are checked and calibrated in accordance with manufacturer's instructions 2.4 Tools are cleaned and lubricated according to standard procedures 2.5 Defective instruments, equipment and accessories are inspected and replaced according to manufacturer's specifications 2.6 Tools are inspected, repaired and replaced after use 2.7 Work place is cleaned and kept in safe state in line with OHSA regulations
3. Store tools and equipment	3.1 Inventory of tools, instruments and equipment are conducted and recorded as per company practices 3.2 Tools and equipment are stored safely in appropriate locations in accordance with manufacturer's specifications or company procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials	Including but not limited to: 1.1 Lubricants 1.2 Cleaning materials 1.3 Rust remover 1.4 Rugs 1.5 Spare parts
2. Tools and equipment	Including but not limited to: 2.1 Tools - Cutting tools - hacksaw, crosscut saw, rip saw - Boring tools - auger, brace, grinlet, hand drill - Holding tools - vise grip, C-clamp, bench vise - Threading tools - die and stock, taps 2.2 Measuring instruments/equipment
3. PPE	Including but not limited to: 3.1 Goggles 3.2 Gloves 3.3 Safety shoes 3.4 Aprons/Coveralls
4. Forms	4.1 Maintenance schedule forms 4.2 Requisition slip 4.3 Inventory Form 4.4 Inspection Form 4.5 Procedures

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment requires that the candidate: 1.1 Selected and used appropriate processes, tools and equipment to carry out task 1.2 Identified functional and non-functional tools and equipment 1.3 Checked, lubricated and calibrated tools, equipment and instruments according to manufacturer's specifications 1.4 Replaced defective tools, equipment and their accessories 1.5 Observed and applied safe handling of tools and equipment and safety work practices 1.6 Prepared and submitted inventory report, where applicable 1.7 Maintained workplace in accordance with OHSA regulations 1.8 Stored tools and equipment safely in appropriate locations and in accordance with company practices
2. Underpinning knowledge	**2.1 SAFETY PRACTICES** 2.1.1 Use of PPE 2.1.2 Handling of tools and equipment 2.1.3 Good housekeeping **3.2 MATERIALS, TOOLS AND EQUIPMENT** 2.2.1 Types and uses of lubricants 2.2.2 Types and uses of cleaning materials 2.2.3 Types and uses of measuring instruments and equipment **3.3 PREVENTIVE MAINTENANCE** 2.3.1 Methods and techniques 2.3.2 Procedures
3. Underpinning skills	3.1 Preparing maintenance materials, tools and equipment 3.2 Proper handling of tools and equipment 3.3 Performing preventive maintenance 3.3 Following instructions
4. Resource implications	The following resources should be provided: 4.1 Workplace 4.2 Maintenance schedule 4.2 Maintenance materials, tools and equipment relevant to the proposed activity/task
5. Methods of assessment	Competency should be assessed through: 5.1 Direct observation 5.2 Written test/questioning relevant to Underpinning knowledge

6. Context of assessment	6.1 Competency assessment may occur in workplace or any appropriate simulated environment 6.2 Competency assessment must be undertaken in accordance with the endorsed TESDA assessment guidelines

CORE COMPETENCIES

UNIT OF COMPETENCY	**INSPECT RIGGING GEARS**
UNIT CODE	**CON721301**
UNIT DESCRIPTOR	This unit describes the outcomes required in inspecting rigging gears to reduce risk on the job site. It covers the skills required to inspect snatch blocks, fittings and slings following job and / or manufacturer's requirements.

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** *terms are elaborated in the Range of Variables*
1. Inspect snatch blocks	1.1 Condition of sheave groove is inspected according to the tolerance as indicated in the wire rope user's manual 1.2 Wear and deformation of side plates is inspected according to rigging chart for blocks 1.3 Condition of sheave hub is checked in accordance with manufacturer's catalogue 1.4 ***Fasteners*** are properly secured in accordance with the user's manual 1.5 Clearance and swivel case are checked in accordance with the manufacturer's standards 1.6 ***Typical block components*** are checked for damages, clearance, proper installation as per blocks handbook
2. Inspect fittings	2.1 ***Fittings*** are inspected for ***excessive wear*** according to the limits as indicated in the manufacturer's manual. 2.2 Check for ***visual damages*** is undertaken on the fittings according to the rigging chart 2.3 Check for ***modification*** is undertaken according to the manufacturer's catalogue 2.4 Check for proper ***installation*** is carried out according to information manual.

3. Inspect sling	3.1 Visual check for damages is carried out based on manufacturer's ***inspection criteria***. 3.2 Sling capacity to lift the load is checked according to workload limit. 3.3 Sling for permanently ***affixed identification*** is checked in accordance with industry standards.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Fasteners	1.1 Nuts 1.2 Bolts 1.3 Retaining pins
2. Typical block component	2.1 Sheaves 2.2 Bolts 2.3 Hooks 2.4 Side plates 2.5 Shackles 2.6 Locks
3. Fittings	3.1 Shackles 3.2 Wire rope clips 3.3 All types of hooks 3.4 Turnbuckles 3.5 All types of links 3.6 All types of thimbles 3.7 Swivels 3.8 Eye bolts 3.9 Sheaves 3.9 Sleeves 3.10 Sockets
4. Excessive wear	4.1 >5% (critical areas) 4.2 >10% (non-critical areas)
5. Visual damages	5.1 Nicks 5.2 Cracks 5.3 Gouges 5.4 Deformations
6. Modification	6.1 Welding 6.2 Substitution of other components 6.3 Heating 6.4 Bending

7. Installation	7.1 Latches 7.2 Bearing 7.3 Locking devices 7.4 Wire rope clips 7.5 Wedge socket
8. Inspection criteria	8.1 Wire rope sling 8.1.1 Kingking 8.1.2 Crushing 8.1.3 Unstranding 8.1.4 Broken or cut strands 8.1.5 Stranding displacement 8.1.6 Core protrusion 8.1.7 Corrosion 8.1.8 Bird caging 8.1.9 Broken wire 8.2 Chain sling 8.2.1 Wear 8.2.2 Nick, cracks, breaks 8.2.3 Gouges, stretch, bends 8.2.4 Weld splatter 8.2.5 Excessive temperature 8.2.6 Throat opening of hook 8.2.7 Corrosion 8.3 Synthetic sling 8.3.1 Acid or caustic burns 8.3.2 Melting or charring 8.3.3 Holes or cuts 8.3.4 Tears and snugs 8.3.5 Broken stitches 8.3.6 Worn stitches 8.3.7 Excessive abrasion 8.3.8 Knot
9. affixed identification	9.1 Size 9.2 Grade 9.3 Rated capacity 9.4 Manufacturer

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment must confirm evidence that the candidate 1.1 Demonstrated understanding on the workload limit of the slings, blocks or fittings. 1.2 Demonstrated understanding on the condition of rigging gears. 1.3 Demonstrated understanding of user's manual, among others. 1.4 Demonstrated proper handling and storage of rigging gears.
2. Underpinning (related) Knowledge and attitudes	The essential knowledge and attitude of a Rigger needs to perform work to the required standard include: 2.1 Controlled risk procedures 2.2 Various load factors 2.3 Limitations of slings, blocks and fittings 2.4 Rigging manuals and reference book 2.5 Identification and usage of specific rigging gears
3. Underpinning Skills	The essential skills a Rigger needs to perform work to the standard include: 3.1 Communication skills 3.1.1 Reports 3.1.2 Checklist 3.2 Detecting modifications 3.3 Determining correct use of rigging gears 3.4 Following proper risk procedures
4. Resource Implications	The following resources must be provided: 4.1 Standard rigging gears 4.2 Job site
5. Method of Assessment	5.1 Oral/Written questioning 5.2 Observation of practical demonstration 5.3 Work records and documents
6. Context of Assessment	6.1 Assessment maybe conducted in on-the-job or in a simulated venue and in accordance with work safe procedures.

UNIT OF COMPETENCY	**INSTALL RIGGING GEARS**
UNIT CODE	**CON721302**
UNIT DESCRIPTOR	This unit describes the outcomes required in the proper selection and use of rigging gears. It covers skills required to evaluate load, connect slings and hitches, determine limitations of rigging gears and load control stability.

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** *terms are elaborated in the Range of Variables*
1. Evaluate the load	1.1 Center of gravity is determined according to odd or simple load ***shape*** or by means of trial lifting***.*** 1.2 Load weight is determined according to ***documents,*** dynamometer (load scale), or size, shape and type of material. 1.3 Density and volume of load is determined in accordance with material handbook. 1.4 Lifting (pick) point or connecting point is determined according to reference manual.
2. Select and connect slings and hitches	2.1 Appropriate ***hitches*** or ***combination of hitches*** is identified in accordance with the ***reference material*** and ***environmental conditions*** in the jobsite. 2.2 ***Horizontal sling angle*** is determined in accordance with the reference material***.*** 2.3 ***Number and appropriate type of slings*** are determined and identified according to job requirements. 2.4 Proper procedures for attaching slings and hitches are carried out in accordance with the rigging handbook and training manual.
3. Determine and observe load limits of rigging gears	3.1 Appropriate ***rigging gears*** are determined according to job requirements. 3.2 Work load limit is determined according to the reference materials. 3.3 Work load limit is embossed or tagged readable on the rigging gears according to manufacturer's specifications.

4. Determine and achieve load control stability	4.1 Center of gravity (CG) of the load is located according to the recommendations of company authorized personnel. 4.2 Special techniques or combinations of basic hitches are applied to provide good load control in accordance with the training manual. 4.3 The CG of the load is rigged directly under the hook, as per job specifications.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Shape	1.1 Cylinder 1.2 Concrete slab 1.3 Structural steel 1.4 Steel flats 1.5 Cone 1.6 Sphere
2. Document	2.1 Bill of ladings 2.2 Drawings and catalogues 2.3 Labels 2.4 Tags 2.5 Nameplate
3. Hitches	3.1 Vertical 3.2 Choker 3.3 Basket
4. Combination of hitches	4.1 Double wrap basket hitch 4.2 Double wrap choker hitch
5. Reference materials	5.1 Rigging chart 5.2 Rigging handbook 5.3 Training manual 5.4 Manufacturer's catalogue
6. Environmental conditions	6.1 Windy 6.2 Wet 6.3 Rainy 6.4 Extreme heat 6.5 Other obstructions e.g., fogginess, material obstructions
7. Horizontal sling angles	7.1 *90* degrees 7.2 *60* degrees (ideal) 7.3 *50* degrees 7.4 *45* degrees 7.5 *30* degrees (maximum allowable angle)

8. Number of slings	8.1 Single leg 8.2 Double leg 8.3 Triple leg 8.4 Quadruple leg
9. Type of slings	9.1 Synthetic 9.2 Wire rope 9.3 Chain (grade 80 or 100)
10. Rigging gears	10.1 Hoist hook 10.1.1 eye hook 10.1.2 shank hook 10.1.3 swivel hook 10.2 Sliding choker hook 10.3 Sure lock hook 10.2.1 eye hook 10.2.2 swivel hook 10.2.3 clevis hook 10.2.4 shank hook 10.4 Eye sling hook 10.5 Clevis sling hook 10.6 Grab hook (eye or clevis) 10.7 Weld-on hook 10.8 Sorting hook 10.9 Barrel hook 10.10 Latch 10.10.1 Shank hook 10.10.2 Swivel hook 10.10.3 Clevis sling hook 10.10.4 Eye sling hook 10.10.5 Eye hook

10. Rigging gears (cont.)	10.11 Shackles 10.11.1 Screw pin anchor shackle 10.11.2 Screw pin chain shackle 10.11.3 Bolt type anchor shackle 10.11.4 Bolt type chain shackle 10.12 Links and rings 10.13 Turnbuckle 10.13.1 Hook & hook 10.13.2 Hook & eye 10.13.3 Eye & eye 10.13.4 Jaw & eye 10.13.5 Jaw & jaw 10.14 Eye bolt 10.15 Slings

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment must confirm evidence that the candidate 1.1 Demonstrated ability to use and interpret material reference book 1.2 Demonstrated correct procedures in installing rigging gears 1.3 Complied with enterprise standard operating procedure. 1.4 Demonstrated understanding on acceptable tolerance of each rigging gear 1.5 Complied with risk management procedures and practices
2. Underpinning (related) knowledge and attitudes	2.1 Identification and use of different rigging gears 2.2 Proper procedure for installing rigging gears 2.3 Importance of load control 2.4 Importance of horizontal sling angles 2.5 Basic Mathematics 2.6 Wear and tear tolerance of the various rigging gears 2.7 Understand lifting plan
3. Underpinning skills	3.1 Ability in selecting appropriate hardware 3.2 Interpreting correctly the rigging chart 3.3 Following enterprise standard operating procedure 3.4 Properly attaching rigging gears 3.5 Ability in using various combinations of rigging gears 3.6 Basic calculations 3.7 Ability in accomplishing rigging checklist 3.8 Following lifting plan
4. Resource implications	The following resources must be provided: 4.1 Rigging gears reference book 4.2 Job site 4.3 Rigging gears 4.4 Measuring tools
5. Method of assessment	Competency in this unit must be assessed through: 5.1 Written/oral questioning 5.2 Demonstration 5.3 Work record and documents
6. Context of assessment	6.1 Competency in this unit maybe assessed on a simulated workplace environment

UNIT OF COMPETENCY	**ASSIST CRANE OPERATOR**
UNIT CODE	**CON721303**
UNIT DESCRIPTOR	This unit describes the outcomes required in communicating with crane operator during lifting and transferring of heavy loads. It includes skills required to establish communication signals with and guide crane operator when lifting and transferring of heavy loads.

ELEMENT	**PERFORMANCE CRITERIA** ***Bold and italicized*** *terms are elaborated in the Range of Variables*
1. Establish communication signal	1.1 Appropriate ***communication signal*** is determined and used according to work site condition. 1.2 Identified communication signal is relayed with the Crane Operator according to work condition. 1.3 Appropriate communication signal is executed according to lifting plan. 1.4 Clear communication signal is established by using radio or hand signals.
2. Guide crane operator in handling the load	2.1 Unusual loading or environmental condition is anticipated and communicated with the Crane Operator according to communication signal selected. 2.2 Distances, heights and clearances in the work area are observed, assessed and communicated with the Crane Operator according to communication signal selected. 2.3 ***Environmental hazards*** are relayed to Crane Operator according to communication signal selected. 2.4 Tagline is provided to achieve loads stability. 2.5 Total lift of load is observed and communicated based on communication signal selected. 2.6 Traveling path of load is directed based on the assessed environmental hazards. 2.7 Risk management procedures are communicated based on communication signal selected.

RANGE OF VARIABLES

VARIABLE	RANGE
1. Communication signal	1.1 Hand-held radio 1.2 Hand signals (international standard)
2. Environmental hazards	2.1 People 2.2 Obstructions 2.2.1 Material (concrete) 2.2.2 Structural

EVIDENCE GUIDE

1. Critical aspects of competency	Assessment must confirm evidence that the candidate 1.1 Demonstrated ability in the use of reference material and hand-held radio. 1.2 Demonstrated understanding of risk-control procedures 1.3 Demonstrated ability to communicate and work with Crane operator in satisfactory execution of lifting plan
2. Underpinning (related) knowledge and attitude	2.1 Different hand signals (international standard) 2.2 Use of hand-held radio 2.3 Basic rigging principles 2.4 Risk management
3. Underpinning skills	3.1 Ability in speaking clearly 3.2 Ability in using hand-held radio 3.3 Ability in using various hand signals 3.4 Interpreting reference material 3.5 Executing lifting plan
4. Resource implications	The following resources must be provided: 4.1 Hand-held radio 4.2 Crane
5. Method of assessment	Competency in this unit must be assessed through: 5.1 Oral/written questioning 5.2 Demonstration 5.3 Work record and documentation
6. Context of assessment	6.1 Competency in this unit maybe assessed in a simulated venue

SECTION 3 TRAINING STANDARDS

These guidelines are set to provide the Technical and Vocational Education and Training (TVET) providers with information and other important requirements to consider when designing training programs for **RIGGING NC I.**

3.1 CURRICULUM DESIGN

Course Title : HEAVY EQUIPMENT OPERATION - RIGGING
NC Level:

BASIC COMPETENCIES
Nominal Training Hours: 18 Hours (Basic) + 18 Hours (Common)
Course Description:

This course is designed to equip individual with the basic, common and core competencies in Construction Sector particularly in Heavy Equipment Operation.

To obtain this, all units prescribed for this qualification must be achieved:

BASIC COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Participate in workplace communication	1.1 Obtain and convey workplace information. 1.2 Complete relevant work related documents 1.3 Participate in workplace meeting and discussion.	Group discussion Interaction	• Demonstration • Observation • Interviews/ questioning
1. Work in a team environment	2.1 Describe and identify team role and responsibility in a team. 2.2 Describe work as a team member.	Discussion Interaction	• Demonstration • Observation • Interviews/ questioning

3. Practice career professionalism	3.1 Integrate personal objectives with organizational goals. 3.2 Set and meet work priorities. 3.3 Maintain professional growth and development.	Discussion Interaction	• Demonstration • Observation • Interviews/ questioning
4. Practice occupational health and safety	4.1 Evaluate hazard and risks 4.2 Control hazards and risks 4.3 Maintain occupational health and safety awareness	Discussion Plant tour Symposium	• Observation • Interview

COMMON COMPETENCIES

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Prepare construction materials and tools	1.1 Identify Materials 1.2 Requisition Materials 1.3 Receive and inspect materials	Audio Visual simulation Discussion Practical exercise Demonstration	Direct observation Questions or interview Portfolio (credentials) Written / Oral Test Demonstration
2. Observe procedures, Specifications and Manuals of Instructions	2.1 Identify and access specification/ manuals	Audio Visual Simulation Discussion Practical Lab Demonstration	Direct observation Oral questioning Written test or examination Third party report Demonstration (able to impart knowledge and skills)
3. Perform mensurations and calculation	4.1 Select measuring instruments 4.2 Carry out measurements and calculations	Audio Visual Simulation Discussion Practical Lab Demonstration	Direct observation Oral questioning Written test or examination Third party report Demonstration (able to impart knowledge and skills)

4. Maintain tools and equipment	5.1 Check condition of tools and equipment 5.2 Perform basic preventive maintenance 5.3 Sharpen edge and tooth cutting tools 5.4 Store tools and equipment	Audio Visual Simulation Discussion Practical Lab Demonstration	Direct observation of application of tasks Oral questioning Written test or examination Third party report Demonstration

CORE COMPETENCIES

Course Title : HEAVY EQUIPMENT OPERATION RIGGING **Level: NC I**

Nominal Training Hours: 80 Hours

Course Description:

This course is designed to enhance the knowledge, skills and attitudes of a rigger in accordance with industry standards. It covers core competencies such as inspect rigging gears, install rigging gears and assist crane operator.

To obtain this, all units prescribed for this qualification must be achieved:

Unit of Competency	Learning Outcomes	Methodology	Assessment Approach
1. Inspect Rigging Gears	1.1 Explain the importance and procedure in inspecting rigging gears 1.2 Understand the workload limit of the slings, blocks or fittings 1.3 Explain the proper handling and storage of rigging gears 1.4 Inspect snatch blocks 1.5 Inspect fittings 1.6 Inspect slings	Lecture Demonstration	Observation and oral questioning Demonstration and oral questioning Written test

2. Install Rigging Gears	2.1 Explain the fundamental science and mathematics of evaluating load. 2.2 Evaluate the load of rigging gears. 2.3 Select and connect slings and hitches 2.4 Explain the principle and concept in determining load limits and load control stability of rigging gear. 2.5 Determine and observe load limits of rigging gears. 2.7 Determine and achieve load control stability 2.8 Demonstrate correct procedures in installing rigging gears base on reference manual.	Lecture Demonstration	Observation and oral questioning Demonstration and oral questioning Written test
3. Assist Crane Operator	3.1 Explain the concept and principles of communication signal 3.2 Establish communication signal 3.3 Explain the importance of environmental condition, hazards and work obstructions. 3.4 Guide crane operator in handling the load	Lecture Demonstration	Observation and oral questioning Demonstration and oral questioning Written test

3.2 TRAINING DELIVERY

The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of competency-based TVET.

- The training is based on curriculum developed from the competency standards;
- Learning is modular in its structure;
- Training delivery is individualized and self-paced;
- Training is based on work that must be performed;
- Training materials are directly related to the competency standards and the curriculum modules;
- Assessment is based in the collection of evidence of the performance of work to the industry required standard;
- Training is based both on and off-the-job components;
- Allows for recognition of prior learning (RPL) or current competencies;
- Training allows for multiple entry and exit; and
- Approved training programs are nationally accredited.

The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs:

- The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations.
- Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer facilitates the training delivery
- Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.
- Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.
- Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in

the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.

3.3 TRAINEE ENTRY REQUIREMENTS

This section specifies the qualifications of trainees and educational experience. Other requirements like health and physical requirements are also stated. Passing entry written examinations may also be indicated if necessary.

- Can communicate both oral and written
- Physically and mentally fit
- With good moral character
- Can perform basic mathematical computation.

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS

Recommended list of tools, equipment and materials for the training of 25 trainees for rigging

TOOLS		EQUIPMENT		MATERIALS	
QTY		**QTY**		**QTY**	
1 set	• Open end spanners (mm)	1 unit	• Crane	1 set	• Reference
1 set	• Back Wrench (mm)			1 set	• Books
1 set	• Ring spanners (11 pcs) mm			1 set	• Manuals
1 set	• Socket Accessories			1 set	• Catalogs
1 set	• Ratchet, reversible, male extension, male & female, adjustable offset handle			1 set	• Brochure
1 set	• Adjustable wrench			1 set	• Modules/LEs
1 set	• Combination pliers			1 set	• CD/Video tapes
1 set	• Screwdrivers standard tip-round blade			2 sets	• Bolts
1 set	• Screwdriver, Philips type-round blade			2 sets	• Nuts
				2 sets	• Retaining pine
				2 sets	• Sheaves
				2 sets	• Hooks
				2 sets	• Side plates
				2 sets	• Shackles

				2 sets	• Locks
				2 sets	• Wire rope clips
				2 sets	• Types of links
				2 sets	• Types of thimbles
				2 sets	• Sleeves
				2 sets	• Sockets
				2 sets	• Filler rod

NOTE: Implementation of the training program can be made possible through a MOA between the training school and industry. It is so because of the high cost of equipment that the school can't afford to attained.

3.5 TRAINING FACILITIES

The rigging workshop must be of concrete structure. Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	TOTAL AREA IN SQ. METERS
• Student/Trainee's Working Space	2.0 x 2.0 meters	4 sq.m per student	100.0 sq.m.
• Lecture Room	8.00 x 6.00	48.00	48.0
• Learning Resource Center	4.00 x 6.00	24.00	24.0
•			172
• Facilities/Equipment/ Circulation Area	-	-	52
TOTAL WORK AREA	-		**224**
Working field	0.25 hectare (MOA/Rental)		

3.6 TRAINERS' QUALIFICATION
HEAVY EQUIPMENT OPERATION (LIFTING)

TRAINER QUALIFICATION (TQ II)

- Must be a holder of NC II
- Must have undergone training on Training Methodology II (TM II)
- Must be physically and mentally fit
- *Must have at least 2 years job/industry experience

* Optional. Only when required by the hiring institution

Reference: TESDA Board Resolution No. 2004 03

SECTION 4 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS

4.1 To attain the National Qualification of **RIGGING NC I**, the candidate must demonstrate competence through project-type assessment covering all the units listed in Section 1. The successful candidate shall be awarded a National Certificate signed by the TESDA Director General.

4.2 The qualification of **Rigging NC I** can be attained through demonstration of competence through project-type assessment covering all the units of qualification.

4.3 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.

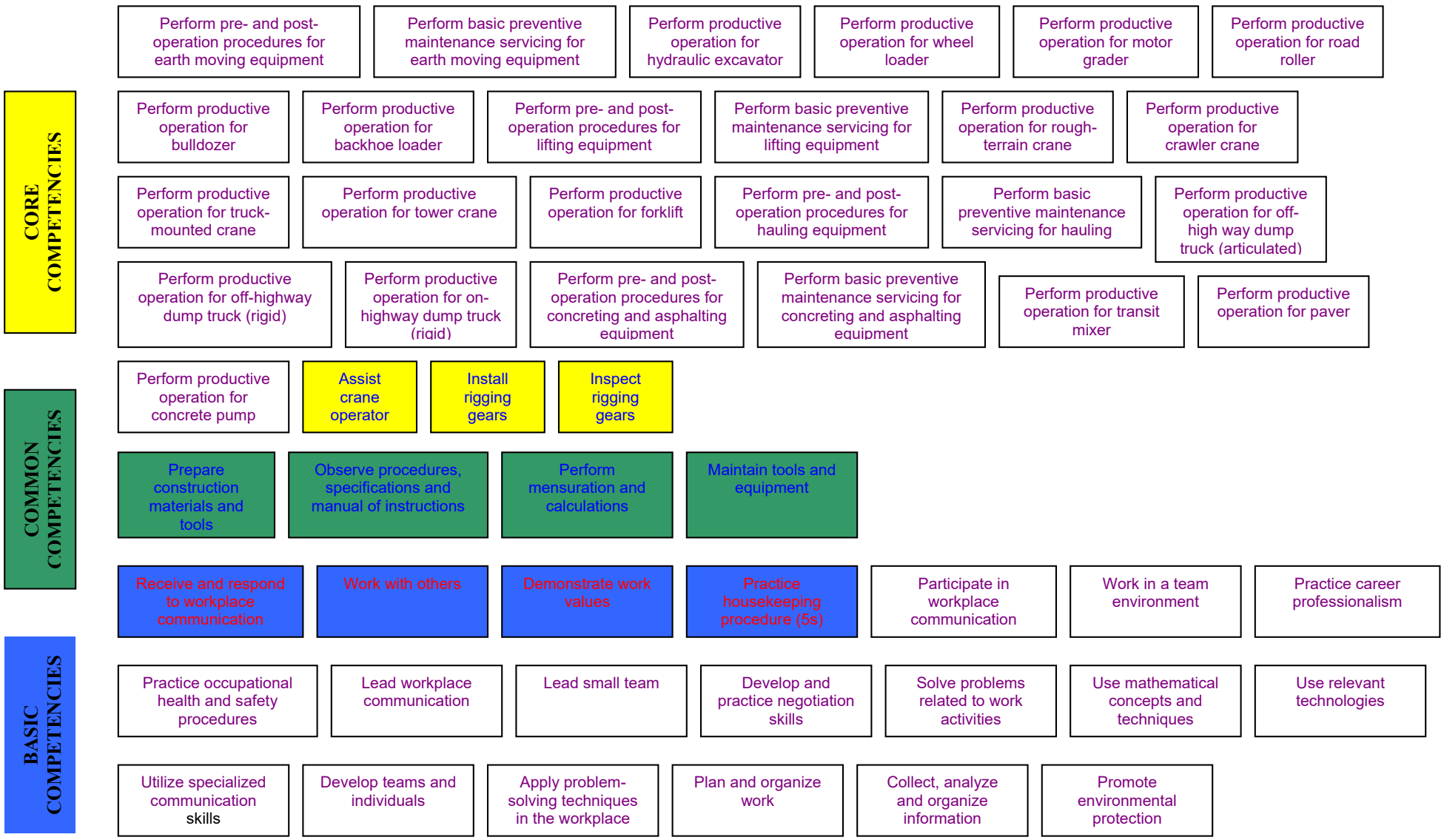
4.4 The following are qualified to apply for assessment and certification:

4.4.1 Graduates of formal, non-formal and/or informal training including enterprise-based training programs

4.4.2 Experienced Workers (wage-employed or self-employed)

The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS)."

COMPETENCY MAP
CONSTRUCTION-HEAVY EQUIPMENT OPERATION - SUB- SECTOR



Definition of Terms

For the purpose of this Competency Standard, the words

1. Deformation	Refers to a change in the original shape of the fitting.
2. Fittings	Refer to the tools or devices used as attachment for wire rope, chain or web sling.
3. Grooves	Refers to a depression in the periphery of a sheave for supporting a rope.
4. Hitches	Refers to a method of lifting with a sling (i.e. vertical, basket, choker) for better load control.
5. Kink	Refers to a sharp bend in a wire rope that permanently distorts the wire and strands but not dogleg.
6. Rigger	Refers to a qualified person who is responsible for connecting the load, and inspecting the rigging gears and assisting the crane operator.
7. Rigging Chart	Refers to the rigger's lifting guide provided by the manufacturer.
8. Rigging Gears	Refer to the use of the general rigging hardware such as spreader bar, slings, shackles, splicing kit, tagline, etc.
9. Sheave	Refers to a grove pulley with a rim.
10. Sleeves	Refer to a kind of swage or ferule in press fitting used to form a loop/ eye at the end of a wire rope.
11. Tagline	Refers to a rope attached to prevent additional movement of a load.
12. User's Manual	Refers to the manufacturer's general catalogue.
13. Wear	Refers to a reduction in the circumference of a fitting due to friction.
14. Work Load Limit	Refers to the maximum mass or force which the product is authorized to support in a particular service.
15. Wire Rope	Refers to a material composed of hi-carbon steel wires and strands laid helically around a core.

ACKNOWLEDGEMENTS

The Technical Education and Skills Development Authority (TESDA) wishes to extend thanks and appreciation to the many representatives of business, industry, academe and government agencies and who contributed their time and expertise to the development and validation of this Training Regulations.

- **THE TECHNICAL EXPERT PANEL (TEP)**

Florello P. Quianzon
Consultant, Equipment Concrete Product Division (Equipment Management)
Makati Development Corporation
Ayala-Alabang, Muntinlupa City

Renato P. Faigao
Equipment Manager (Operations and Maintenance Management)
MANCON-CBDC Joint Venture
Pasong Tamo, Extension,
Makati City

Samuel M. Puquiz
Head, Mechanical and Technical (Construction Equipment Repair and Maintenance)
DM Consunji Inc.
Pasong Tamo Extension, Makati City

Arturo M. Abrera
Head, Mechanical Works Training Division (Civil Works, Heavy Equipment Operation)
Department of Trade and Industry - Construction Manpower Development Foundation
Pasong Tamo, Makati City

Luciano E. Policarpio
Safety Engineer (Construction Safety)
Foundation Specialists, Inc.
Paseo de Roxas, Legaspi Village, Makati City

Roberto B. Ocampo
Senior Technical Trainer
Monark Equipment Corporation
E. Rodriguez Jr., Avenue,
Libis, Quezon City

Tito C. Tadios
Training Manager (Heavy Equipment Operation and Maintenance)
Maxima Equipment Co. Inc.
Mapulang lupa, Valenzuela City

Cresencio B. Maramag Jr.
Vice President for Operations (Equipment Management, Testing and Certification)
First Philippines Skills and Equipment Testing Corp.
Bagong Ilog, Pasig City

Nicanor A. Lucanas Jr.
Machine Operations Specialist
Monark Equipment Corporation
E. Rodriguez Jr. Avenue,
Libis, Quezon City

Rudolfo D. Ancheta
Quality Controller Supervisor (Repair and Maintenance of Hydraulic Excavator/Basic Hydraulic)
Civil Merchanidising Inc.
Pag-asa, Quezon City

Nestor T. Butacan
Technical Trainer
Maxima Equipment Co. Inc.
Quezon Avenue,
Quezon City

Michael B. Rudolfo
Maintenance Engineer
C.M. Pancho Construction Inc.
Scout Borromeo St.,
Diliman, Quezon City

Verano O. Maligalig
Technical Officer (Heavy Equipment Operation and Maintenance)
ACEL, Inc.
Jollibee Plaza Bldg., Emerald Avenue, Ortigas,
Pasig City

Erwin Y. Bituin
Technical Training Specialist
Monark Equipment Corporation
E. Rodriguez jr. Avenue,
Libis, Quezon City

Fernando B. Seva
Division Manager (Operations, Management Training Delivery Division)
Philippine Ports Authority
Port Area, South Harbor, Manila

Sixto Benedicto
Vice President for Operations (Rigging - Trainor)
Benedicto Steel Corp.
Pasong Tamo, Makati City

Raymundo O. Espiritu
Industrial Relations Development (Cargo Handling Specialist)
Philippine Ports Authority
Port Area, South Harbor, Manila

Isagani G. Pamanilaga
Forklift Operator
North Star Port Development Corp.
Pier 4, North Harbor, Manila

Avelino A. Martinito
Forklift Operator
North Star Port Development Corp.
Pier 4, North Harbor, Manila

The Management and Staff of the TESDA Secretariat

- **Skills Standards and Certification Office**
- **National Institute for Technical-Vocational Education and Training**

The Management and Staff of the ACEL Secretariat