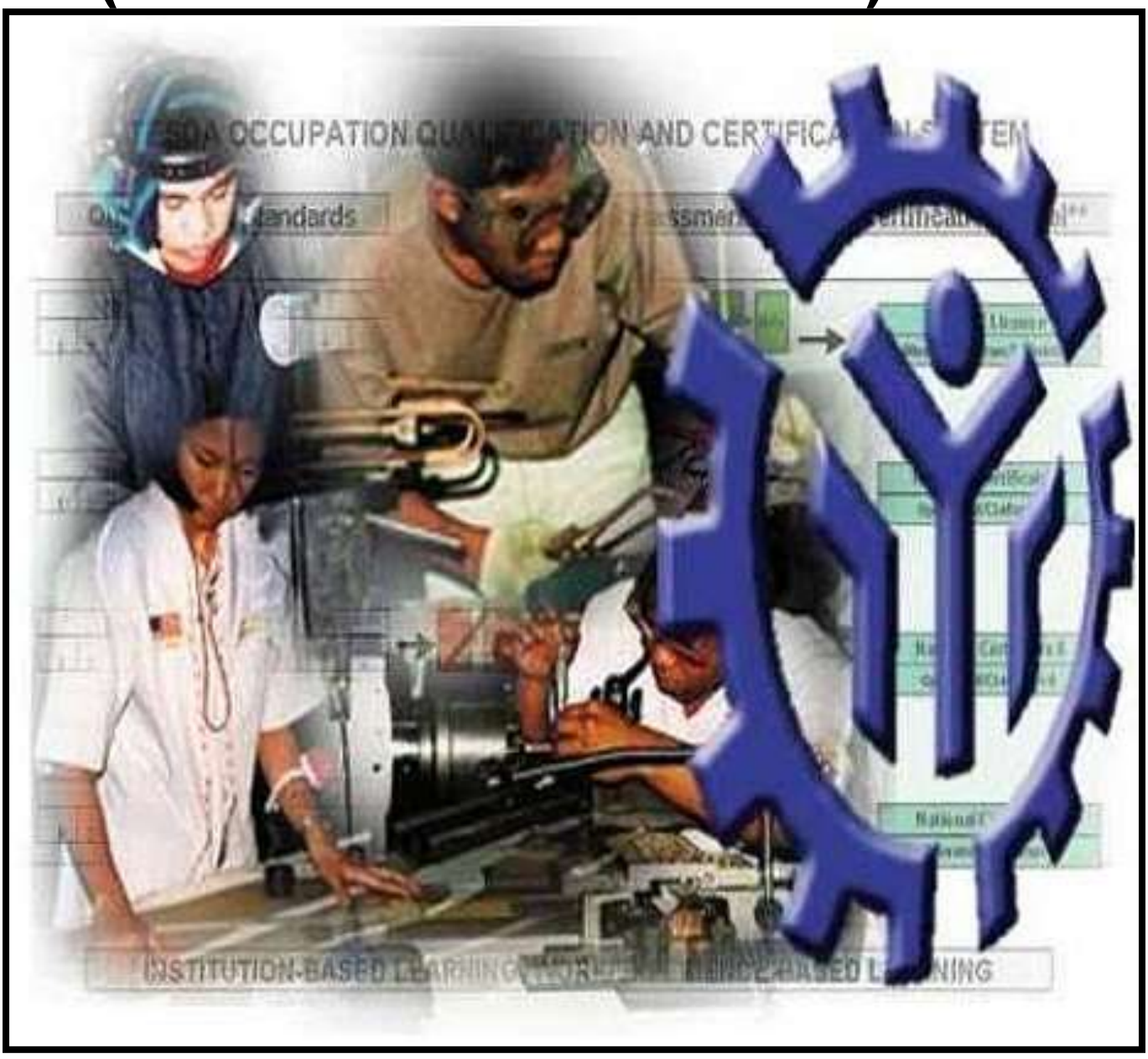
TRAINING REGULATIONS

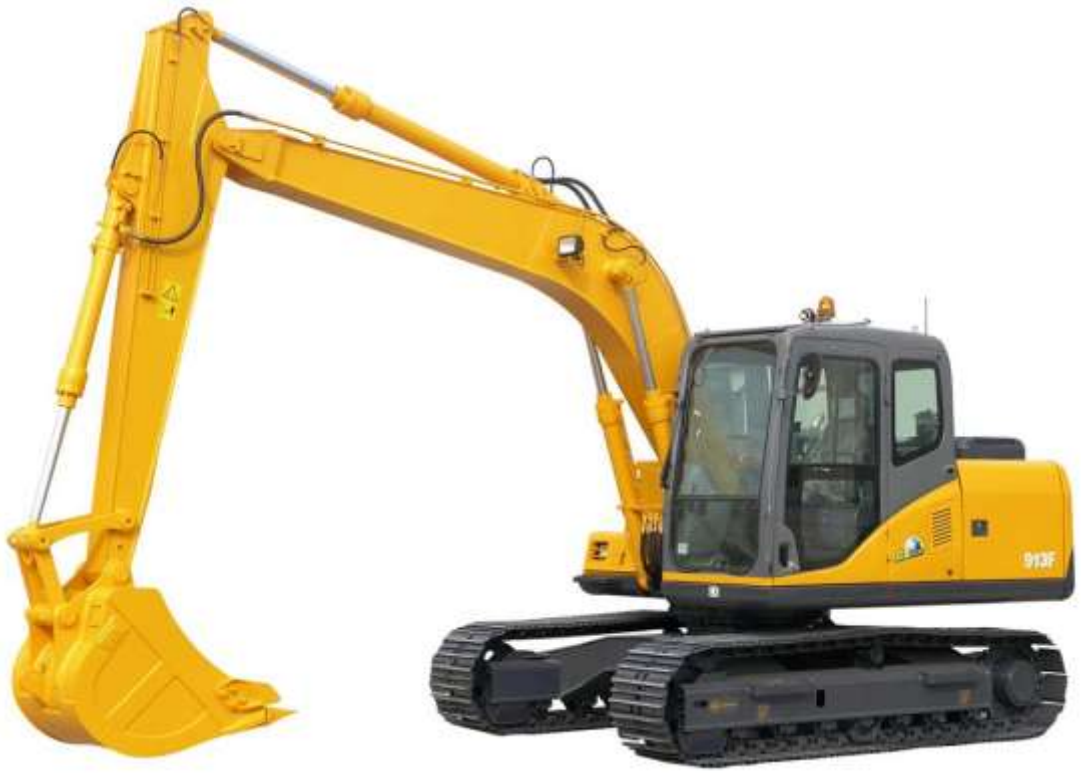
HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR) NC II



CONSTRUCTION SECTOR
(HEAVY EOUIPMENT OPERATION)

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Luzon Expressway (SLEX), Taguig City, Metro Manila

HYDRAULIC EXCAVATOR



Technical Education and Skills Development Act of 1994
(Republic Act No. 7796)

Section 22, "Establishment and Administration of the National Trade Skills Standards" of the RA 7796 known as the TESDA Act mandates TESDA to establish national occupational skill standards. The Authority shall develop and implement a certification and accreditation program in which private industry group and trade associations are accredited to conduct approved trade tests, and the local government units to promote such trade testing activities in their respective areas in accordance with the guidelines to be set by the Authority.

The Training Regulations (TR) serves as basis for:

1. Competency assessment and certification;
2. Registration and delivery of training programs; and
3. Development of curriculum and assessment instruments.

Each TR has four sections:

Section 1 **Definition of Qualification** - describes the qualification and defines the competencies that comprise the qualification.

Section 2 **The Competency Standards** format was revised to include the Required Knowledge and Required Skills per element. These fields explicitly state the required knowledge and skills for competent performance of a unit of competency in an informed and effective manner. These also emphasize the application of knowledge and skills to situations where understanding is converted into a workplace outcome.

Section 3 **Training Arrangements** – contain the information and requirements which serve as bases for training providers in designing and delivering competency-based curriculum for the qualification. The revisions to Section 3 entail identifying the Learning Activities leading to achievement of the identified Learning Outcome.

Section 4 **Assessment and Certification Arrangements** - describe the policies governing assessment and certification procedures for the qualification.

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TRAINING REGULATIONS FOR

HEAVY EQUIPMENT OPERATION – HYDRAULIC EXCAVATOR

SECTION 1 HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR)

The **HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR) NC II** qualification consists of competencies that workers must achieve to enable them to perform tasks such as inspection, basic preventive maintenance, excavating, trenching, leveling, loading and lifting of materials in construction sites or other locations with the use of a hydraulic excavator for both wheel and crawler types.

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
400311210	Participate in workplace communication
400311211	Work in a team environment
400311212	Solve/address general workplace problems
400311213	Develop career and life decisions
400311214	Contribute to workplace innovation
400311215	Present relevant information
400311216	Practice occupational safety and health policies and proce
400311217	Exercise efficient and effective sustainable practices in the workplace
400311218	Practice entrepreneurial skills in the workplace

CODE NO.	COMMON COMPETENCIES
CON931201	Prepare construction materials and tools
CON311201	Observe procedures, specifications and manuals of instruction
CON311202	Interpret technical drawings and plans
CON311203	Perform mensurations and calculations
CON311204	Maintain tools and equipment

CODE NO.	CORE COMPETENCIES
CON834219	Perform pre and post-operation procedures for hydraulic excavator
CON834220	Perform basic preventive maintenance servicing for hydraulic excavator
CON834221	Perform productive operation for hydraulic excavator

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

- Hydraulic excavator operator

SECTION 2 COMPETENCY STANDARDS

This section gives the details and contents of the units of competency required in **HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR) NC II**. These units of competency are categorized into basic, common and core competencies.

BASIC COMPETENCIES

UNIT OF COMPETENCY : PARTICIPATE IN WORKPLACE COMMUNICATION

UNIT CODE : 400311210

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources*** 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information 1.3 Appropriate ***medium*** is used to transfer information and ideas 1.4 Appropriate non-verbal communication is used 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed 1.6 Defined workplace procedures for the location and ***storage*** of in**fo**rmation are used 1.7 Personal interaction is carried out clearly and concisely	1.1 Effective verbal and nonverbal communication 1.2 Different modes of communication 1.3 Medium of communication in the workplace 1.4 Organizational policies 1.5 Communication procedures and systems 1.6 Lines of Communication 1.7 Technology relevant to the enterprise and the individual's work responsibilities 1.8 Workplace etiquette	1.1 Following simple spoken language 1.2 Performing routine workplace duties following simple written notices 1.3 Participating in workplace meetings and discussions 1.4 Preparing work-related documents 1.5 Estimating, calculating and recording routine workplace measures 1.6 Relating/ Interacting with people of various levels in the workplace 1.7 Gathering and providing basic information in response to workplace requirements 1.8 Basic business writing skills 1.9 Interpersonal skills in the workplace 2.0 Active-listening skills

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Perform duties following workplace instructions	2.1 Written notices and instructions are read and interpreted in accordance with organizational guidelines 2.2 Routine written instruction are followed based on established procedures 2.3 Feedback is given to workplace supervisor based instructions/ information received 2.4 ***Workplace interactions*** are conducted in a courteous manner 2.5 Where necessary, clarifications about routine workplace procedures and matters concerning conditions of employment are sought and asked from ***appropriate sources*** 2.6 Meetings outcomes are interpreted and implemented	2.1 Effective verbal and non-verbal communication 2.2 Different modes of communication 2.3 Medium of communication in the workplace 2.4 Organizational/ Workplace policies 2.5 Communication procedures and systems 2.6 Lines of communication 2.7 Technology relevant to the enterprise and the individual's work responsibilities 2.8 Effective questioning techniques (clarifying and probing) 2.9 Workplace etiquette	2.1 Following simple spoken instructions 2.2 Performing routine workplace duties following simple written notices 2.3 Participating in workplace meetings and discussions 2.4 Completing work-related documents 2.5 Estimating, calculating and recording routine workplace measures 2.6 Relating/ Responding to people of various levels in the workplace 2.7 Gathering and providing information in response to workplace requirements 2.8 Basic questioning/querying 2.9 Skills in reading for information 2.10 Skills in locating

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Complete relevant work related documents	3.1 Range of ***forms*** relating to conditions of employment are completed accurately and legibly 3.2 Workplace data is recorded on standard workplace forms and documents 3.3 Errors in recording information on forms/ documents are identified and acted upon 3.4 Reporting requirements to supervisor are completed according to organizational guidelines	3.1 Effective verbal and non-verbal communication 3.2 Different modes of communication 3.3 Workplace forms and documents 3.4 Organizational/ Workplace policies 3.5 Communication procedures and systems 3.6 Technology relevant to the enterprise and the individual's work responsibilities	3.1 Completing work-related documents 3.2 Applying operations of addition, subtraction, division and multiplication 3.3 Gathering and providing information in response to workplace requirements 3.4 Effective record keeping skills

RANGE OF VARIABLES

VARIABLES	RANGE
1. Appropriate sources	May include: 1.1. Team members 1.2. Supervisor/Department Head 1.3. Suppliers 1.4. Trade personnel 1.5. Local government 1.6. Industry bodies
2. Medium	May include: 2.1. Memorandum 2.2. Circular 2.3. Notice 2.4. Information dissemination 2.5. Follow-up or verbal instructions 2.6. Face-to-face communication 2.7. Electronic media (disk files, cyberspace)
3. Storage	May include: 3.1. Manual filing system 3.2. Computer-based filing system
4. Workplace interactions	May include: 4.1. Face-to-face 4.2. Telephone 4.3. Electronic and two-way radio 4.4. Written including electronic means, memos, instruction and forms 4.5. Non-verbal including gestures, signals, signs and diagrams
5. Forms	May include: 5.1. HR/Personnel forms, telephone message forms, safety reports

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Prepared written communication following standard format of the organization 1.2. Accessed information using workplace communication equipment/systems 1.3. Made use of relevant terms as an aid to transfer information effectively 1.4. Conveyed information effectively adopting formal or informal communication
2. Resource Implications	**The following resources should be provided:** 2.1. Fax machine 2.2. Telephone 2.3. Notebook 2.4. Writing materials 2.5. Computer with Internet connection
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Demonstration with oral questioning 3.2. Interview 3.3. Written test 3.4. Third-party report
4. Context for Assessment	4.1. Competency may be assessed individually in the actual workplace or through an accredited institution

UNIT OF COMPETENCY : WORK IN A TEAM ENVIRONMENT

UNIT CODE : 400311211

UNIT DESCRIPTOR : This unit covers the skills, knowledge and attitudes to identify one's roles and responsibilities as a member of a team.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Describe team role and scope	1.1 The ***role and objective of the team*** is identified from available ***sources of information*** 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources	1.1 Group structure 1.2 Group development 1.3 Sources of information	1.1 Communicating with others, appropriately consistent with the culture of the workplace 1.2 Developing ways in improving work structure and performing respective roles in the group or organization
2. Identify one's role and responsibility within a team	2.1 Individual roles and responsibilities within the team environment are identified 2.2 Roles and objectives of the team is identified from available ***sources of information*** 2.3 Team parameters, reporting relationships and responsibilities are identified based on team discussions and appropriate external sources	2.1 Team roles and objectives 2.2 Team structure and parameters 2.3 Team development 2.4 Sources of information	2.1 Communicating with others, appropriately consistent with the culture of the workplace 2.2 Developing ways in improving work structure and performing respective roles in the group or organization

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Work as a team member	3.1 Effective and appropriate forms of communications are used and interactions undertaken with team members based on company practices. 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on ***workplace context*** 3.3 Protocols in reporting are observed based on standard company practices. 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives	3.1 Communication Process 3.2 Workplace communication protocol 3.3 Team planning and decision making 3.4 Team thinking 3.5 Team roles 3.6 Process of team development 3.7 Workplace context	3.1 Communicating appropriately, consistent with the culture of the workplace 3.2 Interacting effectively with others 3.3 Deciding as an individual and as a group using group think strategies and techniques 3.4 Contributing to Resolution of issues and concerns

RANGE OF VARIABLES

VARIABLE	RANGE
1. Role and objective of team	May include: 1.1. Work activities in a team environment with enterprise or specific sector 1.2. Limited discretion, initiative and judgement maybe demonstrated on the job, either individually or in a team environment
2. Sources of information	May include: 2.1. Standard operating and/or other workplace procedures 2.2. Job procedures 2.3. Machine/equipment manufacturer's specifications and instructions 2.4. Organizational or external personnel 2.5. Client/supplier instructions 2.6. Quality standards 2.7. OHS and environmental standards
3. Workplace context	May include: 3.1. Work procedures and practices 3.2. Conditions of work environments 3.3. Legislation and industrial agreements 3.4. Standard work practice including the storage, safe handling and disposal of chemicals 3.5. Safety, environmental, housekeeping and quality guidelines

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Worked in a team to complete workplace activity 1.2. Worked effectively with others 1.3. Conveyed information in written or oral form 1.4. Selected and used appropriate workplace language 1.5. Followed designated work plan for the job
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. Role play involving the participation of individual member to the attainment of organizational goal 3.3. Case studies and scenarios as a basis for discussion of issues and strategies in teamwork 3.4 Socio-drama and socio-metric methods 3.5 Sensitivity techniques 3.6 Written Test
4. Context for Assessment	4.1. Competency may be assessed in workplace or in a simulated workplace setting 4.2. Assessment shall be observed while task are being undertaken whether individually or in group

UNIT OF COMPETENCY : SOLVE/ADDRESS GENERAL WORKPLACE PROBLEMS

UNIT CODE : 400311212

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to apply problem-solving techniques to determine the origin of problems and plan for their resolution. It also includes addressing procedural problems through documentation, and referral.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify routine problems	1.1 Routine **problems or procedural problem** areas are identified 1.2 Problems to be investigated are defined and determined 1.3 Current conditions of the problem are identified and documented	1.1 Current industry hardware and software products and services 1.2 Industry maintenance, service and helpdesk practices, processes and procedures 1.3 Industry standard diagnostic tools 1.4 Malfunctions and resolutions	1.1 Identifying current industry hardware and software products and services 1.2 Identifying current industry maintenance, services and helpdesk practices, processes and procedures. 1.3 Identifying current industry standard diagnostic tools 1.4 Describing common malfunctions and resolutions. 1.5 Determining the root cause of a routine malfunction

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Look for solutions to routine problems	2.1 Potential solutions to problem are identified 2.2 Recommendations about possible solutions are developed, **documented**, ranked and presented to ***appropriate person*** for decision	2.1 Current industry hardware and software products and services 2.2 Industry service and helpdesk practices, processes and procedures 2.3 Operating systems 2.4 Industry standard diagnostic tools 2.5 Malfunctions and resolutions. 2.6 Root cause analysis	2.1 Identifying current industry hardware and software products and services 2.2 Identifying services and helpdesk practices, processes and procedures. 2.3 Identifying operating system 2.4 Identifying current industry standard diagnostic tools 2.5 Describing common malfunctions and resolutions. 2.6 Determining the root cause of a routine malfunction
3. Recommend solutions to problems	3.1 Implementation of solutions are **planned** 3.2 Evaluation of implemented solutions are planned 3.3 Recommended solutions are documented and submit to appropriate person for confirmation	3.1 Standard procedures 3.2 Documentation produce	3.1 Producing documentation that recommends solutions to problems 3.2 Following established procedures

RANGE OF VARIABLES

VARIABLE	RANGE
1. Problems/Procedural Problem	May include: 1.1 Routine/non – routine processes and quality problems 1.2 Equipment selection, availability and failure 1.3 Teamwork and work allocation problem 1.4 Safety and emergency situations and incidents 1.5 Work-related problems outside of own work area
2. Appropriate person	May include: 2.1 Supervisor or manager 2.2 Peers/work colleagues 2.3 Other members of the organization
3. Document	May include: 3.1 Electronic mail 3.2 Briefing notes 3.3 Written report 3.4 Evaluation report
4. Plan	May include: 4.1 Priority requirements 4.2 Co-ordination and feedback requirements 4.3 Safety requirements 4.4 Risk assessment 4.5 Environmental requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Determined the root cause of a routine problem 1.2 Identified solutions to procedural problems. 1.3 Produced documentation that recommends solutions to problems. 1.4 Followed established procedures. 1.5 Referred unresolved problems to support persons.
2. Resource Implications	2.1. Assessment will require access to a workplace over an extended period, or a suitable method of gathering evidence of operating ability over a range of situations.
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Case Formulation 3.2 Life Narrative Inquiry 3.3 Standardized test The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY : DEVELOP CAREER AND LIFE DECISIONS

UNIT CODE : 400311213

UNIT DESCRIPTOR : This unit covers the knowledge, skills, and attitudes in managing one's emotions, developing reflective practice, and boosting self-confidence and developing self-regulation.

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Manage one's emotion	1.1 **Self-management strategies** are identified 1.2 Skills to work independently and to show initiative, to be conscientious, and persevering in the face of setbacks and frustrations are developed 1.3 Techniques for effectively handling negative emotions and **unpleasant situation i**n the workplace are examined	1.1 Self-management strategies that assist in regulating behavior and achieving personal and learning goals (e.g. Nine self-management strategies according to Robert Kelley) 1.2 Enablers and barriers in achieving personal and career goals 1.3 Techniques in handling negative emotions and unpleasant situation in the workplace such as frustration, anger, worry, anxiety, etc.	1.1 Managing properly one's emotions and recognizing situations that cannot be changed and accept them and remain professional 1.2 Developing self-discipline, working independently and showing initiative to achieve personal and career goals 1.3 Showing confidence, and resilience in the face of setbacks and frustrations and other negative emotions and unpleasant situations in the workplace

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Develop reflective practice	2.1 Personal strengths and achievements, based on self-assessment strategies and teacher feedback are contemplated 2.2 Progress when seeking and responding to feedback from teachers to assist them in consolidating strengths, addressing weaknesses and fulfilling their potential are monitored 2.3 Outcomes of personal and academic challenges by reflecting on previous problem solving and decision making strategies and feedback from peers and teachers are predicted	2.1 Basic SWOT analysis 2.2 Strategies to improve one's attitude in the workplace 2.3 Gibbs' Reflective Cycle/Model (Description, Feelings, Evaluation, Analysis, Conclusion, and Action plan)	2.1 Using the basic SWOT analysis as self-assessment strategy 2.2 Developing reflective practice through realization of limitations, likes/ dislikes; through showing of self-confidence 2.3 Demonstrating self-acceptance and being able to accept challenges
3. Boost self-confidence and develop self-regulation	3.1 Efforts for continuous self-improvement are demonstrated 3.2 Counter-productive tendencies at work are eliminated 3.3 Positive outlook in life are maintained.	3.1 Four components of self-regulation based on Self-Regulation Theory (SRT) 3.2 Personality development concepts 3.3 Self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psycho-spiritual concepts)	3.1 Performing effective communication skills – reading, writing, conversing skills 3.2 Showing affective skills – flexibility, adaptability, etc. 3.3 Self-assessment for determining one's strengths and weaknesses

RANGE OF VARIABLES

VARIABLE	RANGE
1. Self-management strategies	May include: 1.1 Seeking assistance in the form of job coaching or mentoring 1.2 Continuing dialogue to tackle workplace grievances 1.3 Collective negotiation/bargaining for better working conditions 1.4 Share your goals to improve with a trusted co-worker or supervisor 1.5 Make a negativity log of every instance when you catch yourself complaining to others 1.6 Make lists and schedules for necessary activities
2. Unpleasant situation	May include: 2.1 Job burn-out 2.2 Drug dependence 2.3 Sulking

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Express emotions appropriately 1.2 Work independently and show initiative 1.3 Consistently demonstrate self-confidence and self-discipline
2. Resource Implications	**The following resources should be provided:** 2.1. Access to workplace and resource s 2.2. Case studies
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Demonstration or simulation with oral questioning 3.2. Case problems involving work improvement and sustainability issues 3.3. Third-party report
4. Context for Assessment	4.1. Competency assessment may occur in workplace or any appropriately simulated environment

UNIT OF COMPETENCY : CONTRIBUTE TO WORKPLACE INNOVATION

UNIT CODE : 400311214

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to make a pro-active and positive contribution to workplace innovation.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify opportunities to do things better.	1.1 ***Opportunities for improvement*** are identified proactively in own area of work. 1.2 ***Information*** are gathered and reviewed which may be relevant to ideas and which might assist in gaining support for idea.	1.1 Roles of individuals in suggesting and making improvements. 1.2 Positive impacts and challenges in innovation. 1.3 Types of changes and responsibility. 1.4 Seven habits of highly effective people.	1.1 Identifying opportunities to improve and to do things better. Involvement. 1.2 Identifying the positive impacts and the challenges of change and innovation. 1.3 Identifying examples of the types of changes that are within and outside own scope of responsibility
2. Discuss and develop ideas with others	2.1 ***People who could provide input*** to ideas for improvements are identified. 2.2 Ways of approaching people to begin sharing ideas are selected. 2.3 Meeting is set with relevant people. 2.4 Ideas for follow up are review and selected based on feedback. 2.5 ***Critical inquiry method*** is used to discuss and develop ideas with others.	2.1 Roles of individuals in suggesting and making improvements. 2.2 Positive impacts and challenges in innovation. 2.3 Types of changes and responsibility. 2.4 Seven habits of highly effective people.	2.1 Identifying opportunities to improve and to do things better. Involvement. 2.2 Identifying the positive impacts and the challenges of change and innovation. 2.3 Providing examples of the types of changes that are within and outside own scope of responsibility 2.4 Communicating ideas for change through small group discussions and meetings.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Integrate ideas for change in the workplace.	3.1 Critical inquiry method is used to integrate different ideas for change of key people. 3.2 Summarizing, analyzing and generalizing skills are used to extract salient points in the pool of ideas. 3.3 ***Reporting skills*** are likewise used to communicate results. 3.4 ***Current Issues and concerns*** on the systems, processes and procedures, as well as the need for simple innovative practices are identified.	3.1 Roles of individuals in suggesting and making improvements. 3.2 Positive impacts and challenges in innovation. 3.3 Types of changes and responsibility. 3.4 Seven habits of highly effective people. 3.5 Basic research skills.	3.1 Identifying opportunities to improve and to do things better. Involvement. 3.2 Identifying the positive impacts and the challenges of change and innovation. 3.3 Providing examples of the types of changes that are within and outside own scope of responsibility. 3.4 Communicating ideas for change through small group discussions and meetings. 3.5 Demonstrating skills in analysis and interpretation of data.

RANGE OF VARIABLES

VARIABLES	RANGE
1. Opportunities for improvement	May include: 1.1 Systems. 1.2 Processes. 1.3 Procedures. 1.4 Protocols. 1.5 Codes. 1.6 Practices.
2. Information	May include: 2.1 Workplace communication problems. 2.2 Performance evaluation results. 2.3 Team dynamics issues and concerns. 2.4 Challenges on return of investment 2.5 New tools, processes and procedures. 2.6 New people in the organization.
3. People who could provide input	May include: 3.1 Leaders. 3.2 Managers. 3.3 Specialists. 3.4 Associates. 3.5 Researchers. 3.6 Supervisors. 3.7 Staff. 3.8 Consultants (external) 3.9 People outside the organization in the same field or similar expertise/industry. 3.10 Clients
4. Critical inquiry method	May include: 4.1 Preparation. 4.2 Discussion. 4.3 Clarification of goals. 4.4 Negotiate towards a Win-Win outcome. 4.5 Agreement. 4.6 Implementation of a course of action. 4.7 Effective verbal communication. See our pages: Verbal Communication and Effective Speaking. 4.8 Listening. 4.9 Reducing misunderstandings is a key part of effective negotiation. 4.10 Rapport Building. 4.11 Problem Solving. 4.12 Decision Making. 4.13 Assertiveness. 4.14 Dealing with Difficult Situations.

5. Reporting skills	May include: 5.1 Data management. 5.2 Coding. 5.3 Data analysis and interpretation. 5.4 Coherent writing. 5.5 Speaking.

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Identified opportunities to do things better. 1.2 Discussed and developed ideas with others on how to contribute to workplace innovation. 1.3 Integrated ideas for change in the workplace. 1.4 Analyzed and reported rooms for innovation and learning in the workplace.
2. Resource Implications	**The following resources should be provided:** 2.1 Pens, papers and writing implements. 2.2 Cartolina. 2.3 Manila papers.
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Psychological and behavioral Interviews. 3.2 Performance Evaluation. 3.3 Life Narrative Inquiry. 3.4 Review of portfolios of evidence and third-party workplace reports of on-the-job performance. 3.5 Sensitivity analysis. 3.6 Organizational analysis. 3.7 Standardized assessment of character strengths and virtues applied.
4. Context for Assessment	4.1 Competency may be assessed individually in the actual workplace or simulation environment in TESDA accredited institutions.

UNIT OF COMPETENCY : PRESENT RELEVANT INFORMATION

UNIT CODE : 400311215

UNIT DESCRIPTOR : This unit of covers the knowledge, skills and attitudes required to present data/information appropriately.

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Gather data/ information	1.1 Evidence, facts and information are collected 1.2 Evaluation, terms of reference and conditions are reviewed to determine whether data/information falls within project scope	1.1 Organisational protocols 1.2 Confidentiality 1.3 Accuracy 1.4 Business mathematics and statistics 1.5 Data analysis techniques/procedures 1.6 Reporting requirements to a range of audiences 1.7 Legislation, policy and procedures relating to the conduct of evaluations 1.8 Organisational values, ethics and codes of conduct	1.1 Describing organisational protocols relating to client liaison 1.2 Protecting confidentiality 1.3 Describing accuracy 1.4 Computing business mathematics and statistics 1.5 Describing data analysis techniques/ procedures 1.6 Reporting requirements to a range of audiences 1.7 Stating legislation, policy and procedures relating to the conduct of evaluations 1.8 Stating organisational values, ethics and codes of conduct
2. Assess gathered data/ information	2.1 Validity of data/ information is assessed 2.2 Analysis techniques are applied to assess data/ information. 2.3 Trends and anomalies are identified 2.4 ***Data analysis techniques*** and procedures are documented	2.1 Business mathematics and statistics 2.2 Data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Legislation, policy and procedures relating to the conduct of	2.1 Computing business mathematics and statistics 2.2 Describing data analysis techniques/ procedures 2.3 Reporting requirements to a range of audiences 2.4 Stating legislation, policy and procedures relating to the

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.5 Recommendations are made on areas of possible improvement.	evaluations 2.5 Organisational values, ethics and codes of conduct	conduct of evaluations 2.5 Stating organisational values, ethics and codes of conduct
3. Record and present information	3.1 Studied data/information are recorded. 3.2 Recommendations are analysed for action to ensure they are compatible with the project's scope and terms of reference. 3.3 Interim and final reports are analysed and outcomes are compared to the criteria established at the outset. 3.4 Findings are presented to stakeholders.	3.1 Data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Legislation, policy and procedures relating to the conduct of evaluations 3.4 Organisational values, ethics and codes of conduct	3.1 Describing data analysis techniques/ procedures 3.2 Reporting requirements to a range of audiences 3.3 Stating legislation, policy and procedures relating to the conduct of evaluations 3.4 Stating organisational values, ethics and codes of conduct practices

RANGE OF VARIABLES

VARIABLES	RANGE
1. Data analysis techniques	May include: 1.1. Domain analysis 1.2. Content analysis 1.3. Comparison technique

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1 Determine data / information 1.2 Studied and applied gathered data/information 1.3 Recorded and studied data/information These aspects may be best assessed using a range of scenarios what ifs as a stimulus with a walk through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations that may have happened.
2. Resource Implications	**Specific resources for assessment** 2.1. Evidence of competent performance should be obtained by observing an individual in an information management role within the workplace or operational or simulated environment.
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1. Written Test 3.2. Interview 3.3. Portfolio The unit will be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency. Simulation should be based on the actual workplace and will include walk through of the relevant competency components.
4. Context for Assessment	4.1. In all workplace, it may be appropriate to assess this unit concurrently with relevant teamwork or operation units.

UNIT OF COMPETENCY : PRACTICE OCCUPATIONAL SAFETY AND HEALTH POLICIES AND PROCEDURES

UNIT CODE : 400311216

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes required to identify OSH compliance requirements, prepare OSH requirements for compliance, perform tasks in accordance with relevant OSH policies and procedures

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify OSH compliance requirements	1.1 Relevant ***OSH requirements, regulations, policies and procedures*** are identified in accordance with workplace policies and procedures 1.2 OSH activity non-conformities are conveyed to ***appropriate personnel*** 1.3 ***OSH preventive and control requirements*** are identified in accordance with OSH work policies and procedures	1.1. OSH preventive and control requirements 1.2. Hierarchy of Controls 1.3. Hazard Prevention and Control 1.4. General OSH principles 1.5. Work standards and procedures 1.6. Safe handling procedures of tools, equipment and materials 1.7. Standard emergency plan and procedures in the workplace	1.1. Communication skills 1.2. Interpersonal skills 1.3. Critical thinking skills 1.4. Observation skills

ELEMENTS	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Prepare OSH requirements for compliance	2.1 OSH work activity material, tools and equipment requirements are identified in accordance with workplace policies and procedures 2.2. Required OSH materials, tools and equipment are acquired in accordance with workplace policies and procedures 2.3. Required OSH materials, tools and equipment are arranged/ placed in accordance with OSH work standards	2.1. Resources necessary to execute hierarchy of controls 2.2. General OSH principles 2.3. Work standards and procedures 2.4. Safe handling procedures of tools, equipment and materials 2.5. Different OSH control measures	2.1. Communication skills 2.2. Estimation skills 2.3. Interpersonal skills 2.4. Critical thinking skills 2.5. Observation skills 2.6. Material, tool and equipment identification skills
3. Perform tasks in accordance with relevant OSH policies and procedures	3.1 Relevant OSH work procedures are identified in accordance with workplace policies and procedures 3.2 Work Activities are executed in accordance with OSH work standards 3.3 ***Non-compliance work activities*** are reported to *appropriate personnel*	3.1. OSH work standards 3.2. Industry related work activities 3.3. General OSH principles 3.4. OSH Violations Non-compliance work activities	3.1 Communication skills 3.3 Interpersonal skills 3.4 Troubleshooting skills 3.5 Critical thinking skills 3.6 Observation skills

RANGE OF VARIABLES

VARIABLE	RANGE
1. OSH Requirements, Regulations, Policies and Procedures	May include: 1.1 Clean Air Act 1.2 Building code 1.3 National Electrical and Fire Safety Codes 1.4 Waste management statutes and rules 1.5 Permit to Operate 1.6 Philippine Occupational Safety and Health Standards 1.7 Department Order No. 13 (Construction Safety and Health) 1.8 ECC regulations
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself
3. OSH Preventive and Control Requirements	May include: 3.1 Resources needed for removing hazard effectively 3.2 Resources needed for substitution or replacement 3.3 Resources needed to establishing engineering controls 3.4 Resources needed for enforcing administrative controls 3.5 Personal Protective equipment
4. Non OSH-Compliance Work Activities	May include non-compliance or observance of the following safety measures: 4.1 Violations that may lead to serious physical harm or death 4.2 Fall Protection 4.3 Hazard Communication 4.4 Respiratory Protection 4.5 Power Industrial Trucks 4.6 Lockout/Tag-out 4.7 Working at heights (use of ladder, scaffolding) 4.8 Electrical Wiring Methods 4.9 Machine Guarding 4.10 Electrical General Requirements 4.11 Asbestos work requirements 4.12 Excavations work requirements

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Convey OSH work non-conformities to appropriate personnel 1.2. Identify OSH preventive and control requirements in accordance with OSH work policies and procedures 1.3. Identify OSH work activity material, tools and equipment requirements in accordance with workplace policies and procedures 1.4. Arrange/Place required OSH materials, tools and equipment in accordance with OSH work standards 1.5. Execute work activities in accordance with OSH work standards 1.6. Report OSH activity non-compliance work activities to appropriate personnel
2. Resource Implications	**The following resources should be provided:** 2.1 Facilities, materials tools and equipment necessary for the activity
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Observation/Demonstration with oral questioning 3.2 Third party report
4. Context for Assessment	4.1 Competency may be assessed in the work place or in a simulated work place setting

UNIT OF COMPETENCY : EXERCISE EFFICIENT AND EFFECTIVE SUSTAINABLE PRACTICES IN THE WORKPLACE

UNIT CODE : 400311217

UNIT DESCRIPTOR : This unit covers knowledge, skills and attitude to identify the efficiency and effectiveness of resource utilization, determine causes of inefficiency and/or ineffectiveness of resource utilization and Convey inefficient and ineffective environmental practices

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify the efficiency and effectiveness of resource utilization	1.1 Required resource utilization in the workplace is measured using appropriate techniques 1.2 Data are recorded in accordance with workplace protocol **1.3** Recorded data are compared to determine the efficiency and effectiveness of resource utilization according to established ***environmental work procedures***	1.1. Importance of Environmental Literacy 1.2. Environmental Work Procedures 1.3. Waste Minimization 1.4. Efficient Energy Consumptions	1.1 Recording Skills 1.2 Writing Skills 1.3 Innovation Skills
2. Determine causes of inefficiency and/or ineffectiveness of resource utilization	2.1 Potential causes of inefficiency and/or ineffectiveness are listed 2.2 Causes of inefficiency and/or ineffectiveness are identified through deductive reasoning 2.3 Identified causes of inefficiency and/or ineffectiveness are validated thru established environmental procedures	2.1 Causes of environmental inefficiencies and ineffectiveness	2.1 Deductive Reasoning Skills 2.2 Critical thinking 2.3 Problem Solving 2.4 Observation Skills

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Convey inefficient and ineffective environmental practices	3.1 Efficiency and effectiveness of resource utilization are reported to *appropriate personnel* 3.2 Concerns related resource utilization are discussed with appropriate personnel 3.3 Feedback on information/ concerns raised are clarified with appropriate personnel	3.1 Appropriate Personnel to address the environmental hazards 3.2 Environmental corrective actions	3.1 Written and Oral Communication Skills 3.2 Critical thinking 3.3 Problem Solving 3.4 Observation Skills 3.5 Practice Environmental Awareness

RANGE OF VARIABLES

VARIABLE	RANGE
1. Environmental Work Procedures	May include: 1.1 Utilization of Energy, Water, Fuel Procedures 1.2 Waster Segregation Procedures 1.3 Waste Disposal and Reuse Procedures 1.4 Waste Collection Procedures 1.5 Usage of Hazardous Materials Procedures 1.6 Chemical Application Procedures 1.7 Labeling Procedures
2. Appropriate Personnel	May include: 2.1 Manager 2.2 Safety Officer 2.3 EHS Offices 2.4 Supervisors 2.5 Team Leaders 2.6 Administrators 2.7 Stakeholders 2.8 Government Official 2.9 Key Personnel 2.10 Specialists 2.11 Himself

EVIDENCE GUIDE

1. Critical aspects of Competency	**Assessment requires evidence that the candidate:** 1.1. Measured required resource utilization in the workplace using appropriate techniques 1.2. Recorded data in accordance with workplace protocol 1.3. Identified causes of inefficiency and/or ineffectiveness through deductive reasoning 1.4. Validate the identified causes of inefficiency and/or ineffectiveness thru established environmental procedures 1.5. Report efficiency and effectives of resource utilization to appropriate personnel 1.6. Clarify feedback on information/concerns raised with appropriate personnel
2. Resource Implications	**The following resources should be provided:** 2.1 Workplace 2.2 Tools, materials and equipment relevant to the tasks 2.3 PPE 2.4 Manuals and references
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Demonstration 3.2 Oral questioning 3.3 Written examination
4. Context for Assessment	4.1 Competency assessment may occur in workplace or any appropriately simulated environment 4.2 Assessment shall be observed while task are being undertaken whether individually or in-group

UNIT OF COMPETENCY : **PRACTICE ENTREPRENEURIAL SKILLS IN THE WORKPLACE**

UNIT CODE : **400311218**

UNIT DESCRIPTOR : This unit covers the outcomes required to apply entrepreneurial workplace best practices and implement cost-effective operations

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Apply entrepreneurial workplace best practices	1.1 ***Good practices*** relating to workplace operations are observed and selected following workplace policy. 1.2 Quality procedures and practices are complied with according to workplace requirements. 1.3 Cost-conscious habits in ***resource utilization*** are applied based on industry standards.	1.1 Workplace best practices, policies and criteria 1.2 Resource utilization 1.3Ways in fostering entrepreneurial attitudes: • Patience • Honesty • Quality-consciousness • Safety-consciousness • Resourcefulness	1.1 Communication skills 1.2 Complying with quality procedures
2. Communicate entrepreneurial workplace best practices	2.1 Observed good practices relating to workplace operations are communicated to **appropriate person**. 2.2 Observed quality procedures and practices are communicated to appropriate person	2.1 Workplace best practices, policies and criteria 2.2 Resource utilization 2.3 Ways in fostering entrepreneurial attitudes: • Patience • Honesty • Quality-consciousness • Safety-consciousness • Resourcefulness	2.1 Communication skills 2.2 Complying with quality procedures 2.3 Following workplace communication protocol

ELEMENTS	PERFORMANCE CRITERIA *Italicized terms* are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	2.3 Cost-conscious habits in resource utilization are communicated based on industry standards.		
3. Implement cost-effective operations	3.1 Preservation and optimization of workplace resources is implemented in accordance with enterprise policy 3.2 Judicious use of workplace tools, equipment and materials are observed according to manual and work requirements. 3.3 Constructive contributions to office operations are made according to enterprise requirements. 3.4 Ability to work within one's allotted time and finances is sustained.	3.1 Optimization of workplace resources 3.2 5S procedures and concepts 3.3 Criteria for cost-effectiveness 3.4 Workplace productivity 3.5 Impact of entrepreneurial mindset to workplace productivity 3.6 Ways in fostering entrepreneurial attitudes: • Quality-consciousness • Safety-consciousness	3.1 Implementing preservation and optimizing workplace resources 3.2 Observing judicious use of workplace tools, equipment and materials 3.3 Making constructive contributions to office operations 3.4 Sustaining ability to work within allotted time and finances

RANGE OF VARIABLES

VARIABLE	RANGE
1.Good practices	May include: 1.1 Economy in use of resources 1.2 Documentation of quality practices
2.Resources utilization	May include: 2.1 Consumption/ use of consumables 2.2 Use/Maintenance of assigned equipment and furniture 2.3 Optimum use of allotted /available time

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate:** 1.1 Demonstrated ability to identify and sustain cost-effective activities in the workplace 1.2 Demonstrated ability to practice entrepreneurial knowledge, skills and attitudes in the workplace.
2. Resource Implications	**The following resources should be provided:** 2.1 Simulated or actual workplace 2.2 Tools, materials and supplies needed to demonstrate the required tasks 2.3 References and manuals 2.3.1 Enterprise procedures manuals 2.3.2 Company quality policy
3. Methods of Assessment	**Competency in this unit should be assessed through:** 3.1 Interview 3.2 Third-party report
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

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 in various workplace settings.

ELEMENT	PERFORMANCE CRITERIA ***Italicized* terms** are elaborated in the Range of Variable	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Identify materials	1.1 Materials are identified as per job requirements 1.2 Quantity and ***description of materials and tools*** conform with the job requirements 1.3 Tools and accessories are identified according to job requirements	1.1 Different work specifications 1.2 Types and uses of heavy equipment tools and accessories	1.1 Identifying tools and accessories according to the job requirements
2. Prepare requisition of materials	2.1 ***Materials and tools*** needed are requested according to the identified requirements 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	2.1 Work requirements 2.2 Types and uses of heavy equipment tools and accessories 2.3 Material take-off 2.4 Requisition procedures	2.1 Preparing material take-off 2.2 Requesting materials and tools
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 3.3 Materials and tools are set aside to appropriate location	3.1 Policy on receiving material deliveries 3.2 Material and tools quality and defects 3.3 Material handling	3.1 Checking and inspecting materials and tools 3.2 Storing/ stacking of tool and materials

RANGE OF VARIABLES

VARIABLE	RANGE
1. Description of materials and tools	May include: 2.1 Brand name 2.2 Size 2.3 Capacity 2.4 Kind of application
2. Tools and accessories	May include: 1.1 Electrical supplies 1.2 Mechanical supplies 1.3 Cleaning supplies
3. Company standard operating procedures	May include: 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 Provided tools with safety devices
2. Resource Implications	**The following resources should be provided:** 2.1 Workplace location 2.2 Materials relevant to the unit of competency 2.3 Plans, drawings and specifications relevant to the activities
3. Methods of Assessment	**Competency in this unit may be assessed through:** 3.1 Direct observation/Demonstration with oral questioning
4. Context of Assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

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	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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	1.1 Types of manuals used in heavy equipment operation 1.2 Identification of symbols used in the manuals	1.1 Identifying manuals and specifications 1.2 Accessing information and data
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	2.1 Types of manuals used in heavy equipment operation 2.2 Types of symbols used in manuals 2.3 System of measurements 2.4 Unit conversion	2.1 Interpreting symbols and specifications 2.2 Accessing information and data 2.3 Applying conversion of units of measurements

ELEMENT	PERFORMANCE CRITERIA ***Italicized* terms** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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	3.1 Types of manuals used in heavy equipment operation 3.2 Types and application of symbols in manuals 3.3 Unit conversion	3.1 Applying information from manuals
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	4.1 Types of manuals used in heavy equipment operation 4.2 Manual storing and maintaining procedures	4.1 Storing and maintaining manuals

RANGE OF VARIABLES

VARIABLE	RANGE
1. Manual	May include: 1.1 Manufacturer's Specification Manual 1.2 Maintenance Procedure Manual 1.3 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. Resource implications	**The following resources should be provided:** 2.1 All manuals/catalogues relative to construction sector
3. Methods of assessment	**Competency in this unit may be assessed through:** 3.1 Direct observation/Demonstration with Oral Questioning
4. Context of assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

UNIT OF COMPETENCY : INTERPRET DRAWINGS AND PLANS

UNIT CODE : CON311202

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in analyzing and interpreting symbols, data and work plan based on the required performance standards.

ELEMENTS	PERFORMANCE CRITERIA *Italicized* terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Analyze signs, symbols and data	1.1 Signs, symbols and data are identified according to job specifications 1.2 ***Signs, symbols*** and data are determined according to ***site regulations***	1.1 Signs and symbols 1.2 Rules and regulations	1.1 Interpreting working drawing
2 Interpret drawings and plans	2.1 Necessary ***tools and materials*** are identified according to the ***work plan*** 2.2 Supplies and materials are listed according to specifications 2.3 Components, assemblies or objects are recognized as required 2.4 Dimensions are identified as appropriate to the plan 2.5 Specification details are matched with existing/available resources and in line with job requirements	2.1 Systems of measurement 2.2 Linear measurement 2.3 Dimension 2.4 Unit conversion	2.1 Interpreting drawing 2.2 Matching specification details with existing resources

RANGE OF VARIABLES

VARIABLE	RANGE
1. Signs and symbols	May include: 1.1 Speed limit 1.2 Direction/Road 1.3 Warnings
2. Site regulations	May include: 2.1 Instructions 2.2 Signages 2.3 Work schedules 2.4 Work bulletin boards 2.5 Charts 2.6 Memos 2.7 Site Map 2.8 Emergency response plan 2.9 Permits
3 Tools and materials	May include: 3.1 Rulers 3.2 Protractor 3.3 Steel tape 3.4 Calculator 3.5 Pencil
4 Work plan	May include: 4.1 Job requirements 4.2 Installation instructions 4.3 Components instruction

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires that the candidate:** 1.1 Identified and determined signs, symbols and data according to work plan and job requirements 1.2 Identified tools and materials in accordance with job requirements 1.3 Demonstrated ability to determine job specifications based on working drawing
2. Resource Implications	**The following resources should be provided:** 1.1 Workplace 1.2 Drawings and specification relevant to task 1.3 Materials and instrument relevant to proposed activity
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	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

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	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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 ***Measuring instruments*** are selected according to job requirements 1.5 Alternative measuring tools are used without sacrificing cost and quality of work	1.1 Types of measuring tools and its uses	1.1 Selecting measuring instruments

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variable	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Carry out measurements and calculations	2.1 ***Measurements*** are obtained according to job requirements 2.2 Alternative measuring tools are used without sacrificing cost and quality of work 2.3 ***Calculations*** needed to complete work tasks are performed using the four basic process of addition (+), subtraction (-), multiplication (x) and division (/) 2.4 Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks 2.5 Numerical computation is self-checked and corrected for accuracy 2.6 Instruments are read to the limit of accuracy of the tool 2.7 Systems of measurement identified and converted according to job requirements/ISO 2.8 Work pieces are measured according to job requirements	2.1 Measurements 2.1.1 Linear measurement 2.1.2 Geometrical measurement 2.2 Trade Mathematics 2.2.1 Unit conversion 2.2.2 Ratio and proportion 2.3 Area	2.1 Interpreting formulas for volume, areas, perimeters of plane and geometric figures 2.2 Handling of measuring instruments

RANGE OF VARIABLES

VARIABLE	RANGE
1. Geometric shape	May include: 1.1 Round 1.2 Square 1.3 Rectangular 1.4 Triangle 1.5 Sphere 1.6 Conical
2. Measuring instruments	May include: 2.1 Micrometer (In-out, depth) 2.2 Vernier caliper (out, inside) 2.3 Thickness gauge 2.4 Torque gauge 2.5 Small hole gauge 2.6 Try-square 2.7 Protractor 2.8 Steel ruler 2.9 Voltmeter 2.10 Ammeter 2.11 Gauges 2.12 Thermometers
3. Measurements and calculations	May include: 3.1 Linear 3.2 Volume 3.3 Area 3.4 Wattage 3.5 Voltage 3.6 Amperage 3.7 Inside diameter 3.8 Length 3.9 Thickness 3.10 Outside diameter 3.11 Density

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. Resource implications	**The following resources should be provided:** 2.1 Workplace location 2.2 Problems to solve 2.3 Measuring instrument appropriate to carry out tasks 2.4 Instructional materials relevant to the propose activity
3. Methods of assessment	**Competency in this unit may be assessed through:** 3.1 Direct observation/Demonstration with Oral Questioning
4. Context of assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

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 construction painting tools and equipment.

ELEMENT	PERFORMANCE CRITERIA ***Italicized* terms** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Check condition of tools and equipment	1.1 ***Materials, tools and equipment*** 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 ***Personal Protective Equipment (PPE)*** are checked in accordance with manufacturer's instructions	1.1 Use of PPE 1.2 Handling of tools and equipment 1.3 Good housekeeping 1.4 Types and uses of lubricants 1.5 Types and uses of cleaning materials	1.1 Maintaining tools and equipment 1.2 Handling of tools and equipment 1.3 Identifying tools and equipment defects

ELEMENT	PERFORMANCE CRITERIA ***Italicized terms*** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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 2.3 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 Occupational Safety and Health (OSHS)	2.1 Use of PPE 2.2 Handling of tools and equipment 2.3 Good housekeeping 2.4 Types and uses of lubricants 2.5 Types and uses of cleaning materials 2.6 Methods and techniques 2.7 Procedures	2.1 Handling of tools and equipment 2.2 Performing preventive maintenance

ELEMENT	PERFORMANCE CRITERIA *Italicized* **terms** are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
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	3.1 Use of PPE 3.2 Handling of tools and equipment 3.3 Storing procedures and techniques 3.4 Storage conditions/ locations	3.1 Storing tools and equipment 3.2 Handling of tools and equipment

RANGE OF VARIABLES

VARIABLE	RANGE
1. Materials	May include: 1.1 Lubricants 1.2 Cleaning materials 1.3 Rust remover 1.4 Rugs 1.5 Spare parts
2. Tools and equipment	May include: 2.1 Tools Cutting tools - hacksaw, crosscut saw Boring tools - brace, hand drill Holding tools - vise grip, C-clamp, bench vise Threading tools - die and stock, taps 2.2 Measuring instruments/equipment
3. Personal Protective Equipment (PPE)	May include: 3.1 Goggles 3.2 Gloves 3.3 Safety shoes 3.4 Hard hat 3.5 Reflectorized Vest

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 OSHA regulations 1.8 Stored tools and equipment safely in appropriate locations and in accordance with company practices
2. Resource implications	**The following resources should be provided:** 2.1 Workplace 2.2 Maintenance schedule 2.3 Maintenance materials, tools and equipment relevant to the proposed activity/task
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	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

CORE COMPETENCIES

UNIT OF COMPETENCY : **PERFORM PRE AND POST-OPERATION PROCEDURES FOR HYDRAULIC EXCAVATOR**

UNIT CODE : **CON834219**

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes in performing visual and operation check before and after productive operation of hydraulic excavator.

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** *terms are elaborated* in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform visual check	1.1 ***Size and capacity of hydraulic excavator*** is selected based on job requirements. 1.2 ***Operator-serviceable (OS) parts*** are checked in accordance with equipment checklist and manufacturer's procedures. 1.3 ***Inspection of equipment*** is performed with checklist while engine is stopped/not running 1.4 ***Personal Protective Equipment (PPE)*** is used in accordance with Rule 1080 Occupational Safety and Health Standards 1.5 Required output is completed based on accomplished checklist	1.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 1.2 Procedures in conducting visual and walk-around check 1.3 Sizes versus capacity 1.4 Familiarization of parts and components of hydraulic excavator 1.5 Factors affecting productivity 1.6 Productivity work measurements 1.7 Ways of improving productivity	1.1 Performing visual and walk-around checking procedures 1.2 Calculating the capacity of hydraulic excavator 1.3 Identifying parts and components of hydraulic excavator and its functions 1.4 Accomplishing equipment checklist 1.5 Applying productive methods and techniques 1.6 Using PPE

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** *terms are elaborated* in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Perform "B L O W A F" check	2.1 ***"BLOWAF" check*** is performed using checklist with engine stopped/not running. 2.2 ***Fluid*** levels are maintained in accordance with equipment maintenance manual. 2.3 Abnormal conditions noted in checklist and reported to ***authorized person***. 2.4 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards 2.5 Daily equipment time record/report (DETR) is accomplished/submitted according to company rules and regulations	2.1 Procedures in performing "BLOWAF" check 2.2 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 2.3 Waste disposal procedures 2.4 Fluid's level and contamination 2.5 Factors affecting productivity 2.6 Productivity work measurements 2.7 Ways of improving productivity	2.1 Accomplishing equipment checklist (DETR) 2.2 Applying waste disposal procedures 2.3 Following "BLOWAF" checking procedures 2.4 Determining fluid level and contamination 2.5 Applying productive methods and techniques 2.6 Using PPE
3. Perform visual check for upper, lower structure and attachments	3.1 ***Upper, lower structure and attachments*** are checked in accordance with checklist and manufacturer's procedures 3.2 upper, lower structure and attachments are secured for safe operation 3.3 Abnormal conditions are noted in checklist and reported to authorized person 3.4 PPE is used in accordance with	3.1 Procedures in visual check for upper, lower structure and attachments 3.2 Functions of attachments 3.3 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 3.4 Factors affecting productivity 3.5 Productivity work measurements	3.1 Following visual checking for upper, lower structure and attachments 3.2 Identifying parts and functions 3.3 Applying productive methods and techniques 3.4 Accomplishing equipment checklist (DETR) 3.5 Using PPE

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** *terms are elaborated* in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	Rule 1080 Occupational Safety and Health Standards 3.5 Daily equipment time record/report (DETR) is accomplished/submitted according to company rules and regulations	3.6 Ways of improving productivity	

ELEMENT	PERFORMANCE CRITERIA ***Italicized** terms are elaborated* in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
4. Perform operation check	4.1 ***Starting/running check*** is performed with checklist and in accordance with manufacturer's recommendations. 4.2 Controls are checked for normal function while engine is running 4.3 ***Safety devices*** are checked for proper functions in accordance with safe operating procedures. 4.4 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards 4.5 Daily equipment time record/report (DETR) is accomplished/submitted according to company rules and regulations	4.1 Start-up and warming procedures 4.2 Procedures in Operation check 4.3 Signs and symbols 4.4 Functions of all components and safety devices 4.5 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 4.6 Factors affecting productivity 4.7 Productivity work measurements 4.8 Ways of improving productivity	4.1 Following inspection procedures while the engine is running 4.2 Testing of hydraulic excavator 4.3 Applying productive methods and techniques 4.4 Accomplishing equipment checklist (DETR) 4.5 Using PPE
5. Perform post-operation procedures	5.1 Hydraulic excavator is parked and turned off after productive operation in accordance to manufacturer's manual. 5.2 Controls are set into neutral position and parking brakes are engaged in accordance to manufacturer's manual.	5.1 Company rules and regulations 5.2 Parking and shut-down procedures 5.3 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 5.4 Factors affecting productivity 5.5 Productivity work measurements 5.6 Ways of improving productivity	5.1 Following rules and regulations in parking and shutting down hydraulic excavator 5.2 Performing post-operation procedures 5.3 Accomplishing DETR and equipment checklist 5.4 Applying productive methods and techniques 5.5 Using PPE

ELEMENT	PERFORMANCE CRITERIA ***Italicized*** *terms are elaborated* in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
	5.3 Safety locks are all engaged in accordance with manufacturer's manual. 5.4 Walk-around inspection check is re-conducted after operation 5.5 Daily equipment time record/report (DETR) is accomplished/submitted according to company rules and regulations 5.6 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards		

RANGE OF VARIABLES

VARIABLE	RANGE
1. Size and capacity of hydraulic excavator	May include: 1.1 0.018 – 0.056 cubic meters 1.2 0.30 - 0.72 cubic meters 1.3 0.45 – 1.50 cubic meters
2. Operator serviceable parts (OS)	May include: 2.4 Air cleaner 2.5 Battery terminals/connection/clamp/case 2.6 Fan belt 2.7 Grease/lube points 2.8 Fuel water separator/radiator 2.9 Tire inflation 2.10 Fuel tank 2.11 Hydraulic oil filters 2.12 Engine oil fan 2.13 Lights 2.14 Steering/suspension
3. Inspection of equipment	May include: 3.1 Power off 3.1.1 Leaks 3.1.2 Worn out/damaged parts 3.1.3 Fluid levels 3.1.4 Loose parts and accessories (nuts/bolts/belts) 3.1.5 Missing parts and accessories 3.1.6 Hydraulic Cylinder 3.1.7 Levers and controls 3.1.8 Counter weight 3.1.9 Rim, tires and stud bolts 3.1.10 Bucket 3.2 Power on 3.2.1 Gauges 3.2.2 Lever and controls 3.2.3 Safety devices 3.2.3 Oil leaks 3.2.4 Pedals 3.2.5 Brakes 3.2.6 Steering 3.2.7 Electrical system 3.3 Early warning device

VARIABLE	RANGE
4. Personal Protective Equipment (PPE)	May include: 4.1 Hard hat 4.2 Goggles 4.3 Gloves 4.4 Safety shoes 4.5 Safety vest
5. B L O W A F check	May include: 5.1 **B**attery (starting and charging system) 5.2 **L**ight (lighting system) 5.3 **O**il (lubricating system) 5.4 **W**ater (cooling system) 5.5 **A**ir (intake and exhaust system) 5.6 **F**uel
6. Fluid	May include: 6.1 Engine oil 6.2 Hydraulic oil 6.3 Radiator coolant/radiator 6.4 Battery solution/ Battery electrolyte/distilled water 6.5 Final drive oil 6.6 Transmission/Gear oil 6.7 Steering oil 6.8 Torque converter oil 6.9 Automatic transmission fluid
7. Authorized person	May include: 7.1 Equipment Supervisor 7.2 Equipment Dispatcher/Foreman 7.3 Equipment Maintenance personnel

VARIABLE	RANGE
8. Upper, lower structure and attachments	May include: 8.1 Attachments 8.1.1 Bucket 8.1.2 Breaker 8.2 Structure 8.2.1 Transmission 8.2.2 Differential 8.2.3 Tires/ Stud and Bolts 8.2.4 Sprocket 8.2.5 Final drive 8.2.6 Track link 8.2.7 Track pad 8.2.8 Track roller 8.2.9 Track frame 8.2.10 Hydraulic pump 8.2.11 Hydraulic motors 8.2 12 Hydraulic control valve 8.2 13 Hydraulic tank 8.2 14 Outrigger 8.2.15 Arm/Stick 8.2.16 Boom 8.2.17 Hydraulic cylinder 8.2.18 Idler

9. Starting/running check	May include: 9.1 Controls/Levers 9.1.1 Travel 9.1.2 Steering 9.1.3 Brake 9.1.4 Bucket in/ out 9.1.5 Arm in/ out 9.1.6 Boom up/ down 9.1.7 Swing left/ right 9.1.8 Clutch and torque converter 9.2 Gauges 9.2.1 Hour meter 9.2.2 Battery charging 9.2.3 Pressure (oil and air) 9.2.4 Temperature (oil and water) 9.2.5 RPM (Tachometer) 9.2.6 Fuel indicator 9.2.7 Speedometer 9.2.8 Hydraulic pressure 9.3 Leaks in 9.3.1 Fuel 9.3.2 Oil 9.3.3 Water 9.4 Electrical/switches 9.4.1 Lights 9.4.2 Horns 9.5 Wiper 9.5.1 Beacon
10. Safety devices	May include: 10.1 Back horn/warning horn 10.2 Signal/stop light 10.3 Blinkers 10.4 Seat belt 10.5 Parking brake 10.6 Roll over protective structure (ROPS) 10.7 Side mirrors

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate:** 1.1 Performed visual check 1.2 Performed “BLOWAF” check 1.3 Performed visual check for upper, lower structure and attachments 1.4 Performed operation check 1.5 Performed post-operation procedures 1.6 Observed safety measures applicable to worksite operation 1.7 Communicated effectively with others to ensure effective work operation
2. Resource implications	**The following resources should be provided:** 2.1 Work area for hydraulic excavator operation 2.2 Access to hydraulic excavator and manuals 2.3 Basic hand tools and portable powered tools 2.4 PPE 2.5 Safety signage/barricades
3. Method of assessment	**The following resources should be provided:** 3.1 Written-Examination 3.2 Direct observation /Demonstration with Oral Questioning
4. Context for assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

UNIT OF COMPETENCY : **PERFORM BASIC PREVENTIVE MAINTENANCE SERVICING FOR HYDRAULIC EXCAVATOR**

UNIT CODE : **CON834220**

UNIT DESCRIPTOR : This unit involves the knowledge, skills and attitudes required in cleaning, greasing, adjusting and replacing operator-serviceable (OS) parts of hydraulic excavator.

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Perform adjustment or replacement for noted defects	1.1 ***Minor defects*** are identified and repaired/replaced in accordance with manufacturer's procedures. 1.2 ***Basic hand tools and portable powered tools*** are selected based on job requirements. 1.3 ***Major defects*** are identified using checklist and referred to ***authorized personnel*** for action. 1.4 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards 1.5 Daily equipment time record/report (DETR) is accomplished/submitted according to company rules and regulations	1.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 1.2 Waste disposal procedures 1.3 Volume/Capacity 1.4 Clearance and distances 1.5 Types of fluids and lubricants 1.6 Procedures in performing adjustments or replacements for noted defects. 1.7 Types and uses of basic hand tools and portable powered tools 1.8 Structure and function of hydraulic excavator components 1.9 Factors affecting productivity 1.10 Productivity work measurements 1.11 Ways of improving productivity	1.1 Application of different basic hand tools and portable powered tools 1.2 Identifying defects 1.3 Performing adjustments or replacements for minor defects 1.4 Handling, segregation and disposal of hazardous waste 1.5 Applying productive methods and techniques 1.6 Accomplishing equipment checklist (DETR) 1.7 Using PPE

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Perform basic preventive maintenance servicing (PMS)	2.1 ***Operator's Serviceable parts*** are identified and serviced according to manufacturer's recommendations. 2.2 ***Standard parameters*** are checked according to manufacturer's recommendations. 2.3 ***Fluids and lubricants*** are used based on manufacturer's manual. 2.4 Basic hand tools, portable powered tools and consumable materials are identified and used in accordance with job requirements. 2.5 ***Basic preventive maintenance servicing (PMS)*** is carried out in accordance with manufacturer's and ***site regulations*** 2.6 ***Site conditions*** are considered during PMS 2.7 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards 2.8 Daily equipment time record/report (DETR) is accomplished/submitted according to company rules and regulations	2.1 Understanding Operator's Maintenance Manual (OMM) 2.2 Site and weather conditions 2.3 Waste disposal procedures 2.4 Volume/capacity 2.5 Clearance and distances 2.6 Types of fluids and lubricants 2.7 Procedures in basic preventive maintenance servicing 2.8 Types and uses of basic hand tools and portable powered tools 2.9 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 2.10 Factors affecting productivity 2.11 Productivity work measurements 2.12 Ways of improving productivity	2.1 Performing basic preventive maintenance servicing (PMS) 2.2 Application of basic hand tools and portable powered tools 2.3 Application of fluids and lubricants 2.4 Handling, segregation and disposal of hazardous waste 2.5 Applying productive methods and techniques 2.6 Accomplishing equipment checklist (DETR) 2.7 Using PPE

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Prepare equipment reports	3.1 Equipment checklist is accomplished in accordance with manufacturer's/ Company requirements. 3.2 Equipment defects are reported to appropriate personnel. 3.3 Document control procedures is observed based on company requirements 3.4 Personal Protective Equipment (PPE) is used in accordance with Rule 1080 of Occupational Safety and Health Standards	3.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 3.2 Completion of checklist and defects reports 3.3 Document control procedures	3.1 Accomplishing equipment checklist 3.2 Using PPE

RANGE OF VARIABLES

VARIABLE	RANGE
1. Minor defects	May include: 1.1 Weak battery 1.2 Tire inflation 1.3 Belt tension 1.4 Clogged air cleaner 1.5 Defective radiator cap 1.6 Loose battery clamps 1.7 Bolts and mountings 1.8 Presence of water in fuel separator
2. Basic hand tools and portable powered tools	May include: 2.1 Hand tools 2.1.1 Wrenches 2.1.2 Pliers 2.1.3 Brush (steel, paint) 2.1.4 Grease gun 2.1.5 Hammer (ball-peen, rubber, test) 2.1.6 Vice grip 2.1.7 Meter tape 2.1.8 Screw driver (Philips and flat tip) 2.1.9 Tire gauge (instrument) 2.2 Portable Powered Tools 2.2.1High pressure washer 2.3 Air compressor 2.4 Battery charger
3. Major defects	May include: 3.1 Busted hydraulic hose 3.2 Hard starting engine 3.3 Excessive engine oil consumption 3.4 Leakage on 3.4.1 Air 3.4.2 Fuel 3.4.3 Cooling 3.4.4 Hydraulic system 3.5 Weak brakes 3.6 Busted/flat tires 3.7 Defective electrical system 3.7.1 Charging 3.7.2 Lighting 3.7.3 Starting 3.7.4 Gauges
4. Authorized personnel	May include: 4.1 Equipment supervisor 4.2 Equipment Dispatcher/Foreman 4.3 Equipment Maintenance personnel

VARIABLE	RANGE
5. Operator serviceable (OS) parts	May include: 5.1 Battery clamps, battery distilled water 5.2 Belts 5.3 Filters 5.3.1 Air cleaner 5.3.2 Water fuel separator/drain valve 5.3.3 Hydraulic filter 5.3.4 Fuel filter 5.4 All fluid caps 5.5 All grease points and fittings 5.6 Tire inflation
6. Standard parameters	May include: 6.1 Oil pressure 6.2 Air pressure 6.3 Temperatures 6.4 Tension 6.5 Clearance and distances
7. Fluids and lubricants	May include: 7.1 Engine oil 7.2 Hydraulic oil 7.3 Brake fluid 7.4 Grease 7.5 Coolant 7.6 Battery solutions 7.7 Transmission oil 7.8 Differential oil 7.9 Power steering oil
8. Basic preventive maintenance servicing	May include: 8.1 Check battery clamps 8.2 Check fan belt conditions (cracked or worn-out) 8.3 Adjust belt tensions (if necessary) 8.4 Clean/replace filters 8.4.1 Air cleaner 8.4.2 Water separator 8.4.3 Hydraulic filter 8.4.4 Fuel filter 8.5 Replace defective fluid caps 8.6 Grease all fittings on lube points 8.7 Tire inflation/Tire air pressure

VARIABLE	RANGE
9. Site regulations	May include: 9.1 Instructions 9.2 Signages 9.3 Work schedules 9.4 Work bulletin boards 9.5 Charts 9.6 Memos 9.7 Site Map 9.8 Emergency response plan 9.9 Permits
10. Site conditions	May include: 10.1 Dusty 10.2 Windy 10.3 Sunny 10.4 Rainy 10.5 Crowded 10.3 Terrain (muddy and slippery)

EVIDENCE GUIDE

1. Critical aspects of competency	**Assessment requires evidence that the candidate:** 1.1 Performed adjustment or replacement for noted minor defects 1.2 Performed basic preventive maintenance servicing (PMS) 1.3 Prepared equipment reports 1.4 Observed safety measures applicable to worksite operation 1.5 Communicated effectively with others to ensure effective work operation
2. Resource implications	**The following resources should be provided:** 2.1 Access to hydraulic excavator and manuals 2.2 Access to hydraulic excavator 2.3 Basic hand tools and portable powered tools 2.4 Fluids and lubricants 2.5 PPE 2.6 Safety signage's/barricades
3. Method of assessment	**Competency in this unit may be assessed through:** 3.1 Written Examination 3.2 Direct observation / Demonstration with Oral Questioning
4. Context for assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center.

UNIT OF COMPETENCY : **PERFORM PRODUCTIVE OPERATION FOR HYDRAULIC EXCAVATOR**

UNIT CODE : **CON834221**

UNIT DESCRIPTOR : This unit involves the knowledge, skills and attitudes in excavation work, loading and lifting operation using hydraulic excavator.

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
1. Travel the hydraulic excavator	1.1 Road conditions are considered before travelling the hydraulic excavator. 1.2 Work area is surveyed for ***potential hazards*** in accordance with safe operating procedures. 1.3 Travel distance, speed and position of hydraulic excavator are observed in accordance with manufacturer's manual and/or company rules and regulations 1.4 ***Unexpected situations*** are responded in line with company rules and regulations. 1.5 Personal Protective Equipment (PPE) is used in accordance with Rule 1080 Occupational Safety and Health Standards	1.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 1.2 Company rules and regulations 1.3 Site and weather conditions 1.4 Road worthiness 1.5 Clearance and distances 1.6 Speed limit 1.7 Procedures in travelling and positioning of hydraulic excavator 1.8 Factors affecting productivity 1.9 Productivity work measurements 1.10 Ways of improving productivity	1.1 Following company rules and regulations 1.2 Travelling the hydraulic excavator 1.3 Using PPE 1.4 Applying productive methods and techniques

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
2. Load and unload hydraulic excavator to low-bed trailer/truck	2.1 Low-bed trailer /truck for transporting the hydraulic excavator is selected according to job requirements. 2.2 ***Attachments*** are positioned and secured based on manufacturer's manual. 2.3 Verbal instructions and signals are conveyed with authorized spotter during loading and unloading as per standard operating procedures. 2.4 All safety locks and control levers are secured at neutral position before and after loading based on manufacturer's specifications. 2.5 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards	2.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 2.2 Hand signals 2.3 Site and weather conditions 2.4 Clearance and distances 2.5 Speed limit 2.6 Procedures in loading and unloading 2.7 Factors affecting productivity 2.8 Productivity work measurements 2.9 Ways of improving productivity	2.1 Following verbal instructions and signals 2.2 Operating skills in loading and unloading hydraulic excavator to low-bed trailer/truck 2.3 Using PPE 2.4 Applying productive methods and techniques

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
3. Perform excavation work	3.1 Site and weather conditions are considered before excavating 3.2 Engine RPM is set at desired operating condition. 3.3 Safe work procedures and practices are observed during excavation operation based on OSH standards and manufacturer's manual 3.4 Work equipment is positioned according to operating procedures. 3.5 Bucket penetration angle position is observed. 3.6 Operation of arm and boom is observed during scooping of excavated materials. 3.7 Required excavation dimensions are observed according to work specifications. 3.8 Unexpected situations are responded in line with company rules and regulations 3.9 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards	3.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 3.2 Signs and symbols 3.3 Company rules and regulations 3.4 Manufacturer's manual 3.5 Site and weather conditions 3.6 Conversion of units 3.7 Clearance and distances 3.8 Safety devices 3.9 Procedures in excavation 3.10 Factors affecting productivity 3.11 Productivity work measurements 3.12 Ways of improving productivity	3.1 Performing excavation work 3.2 Interpreting signals and symbols 3.3 Identifying aspects and hazards 3.4 Following company rules and regulations 3.5 Interpreting manufacturer's manual 3.6 Using PPE 3.7 Applying productive methods and techniques

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
4. Perform loading operation	4.1 Hydraulic Excavator is properly positioned according to ***ground condition*** 4.2 Engine RPM is set at desired operating condition 4.3 Swing angle is maintained according to the required distance and position of ***mobile/ stationary equipment***. 4.4 Loading sequence is observed based on standard operating procedure 4.5 Unexpected situations are responded to in line with company rules and regulations in a manner that minimizes risk to personnel and equipment 4.6 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards	4.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 4.2 Signs and signals 4.3 Company rules and regulations 4.4 Manufacturer's manual 4.5 Site and weather conditions 4.6 Conversion of units 4.7 Clearance and distances 4.8 Safety devices 4.9 Procedures in loading operation 4.10 Factors affecting productivity 4.11 Productivity work measurements 4.12 Ways of improving productivity	4.1 Performing loading operation 4.2 Interpreting signals and symbols 4.3 Identifying aspects and hazards 4.4 Following company rules and regulations 4.5 Interpreting manufacturer's manual 4.6 Using PPE 4.7 Applying productive methods and techniques

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
5. Perform lifting operation	5.1 Engine RPM is set at desired operating condition 5.2 Weight and ***classification of the load*** is determined according to ***load information*** 5.3 Interpreting load chart is observed based on manufacturer's manual 5.4 Rigging of load is observed in accordance with safe lifting procedures 5.5 Tipping radius is checked and confirmed according to lifting capacity of the hydraulic excavator 5.6 Unexpected situations are responded to in line with company rules and regulations in a manner that minimizes risk to personnel and equipment 5.7 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards	5.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 5.2 Signs and signals 5.3 Company rules and regulations 5.4 Manufacturer's manual 5.5 Load chart 5.6 Site and weather conditions 5.7 Conversion of units 5.8 Clearance and distances 5.9 Safety devices 5.10 Procedures in lifting operation 5.11 Factors affecting productivity 5.12 Productivity work measurements 5.13 Ways of improving productivity	5.1 Performing lifting operation 5.2 Interpreting signals and symbols 5.3 Identifying aspects and hazards 5.4 Following company rules and regulations 5.5 Interpreting manufacturer's manual 5.6 Interpreting load chart 5.7 Using PPE 5.8 Applying productive methods and techniques

ELEMENT	PERFORMANCE CRITERIA ***Bold and Italicized*** terms are elaborated in the Range of Variables	REQUIRED KNOWLEDGE	REQUIRED SKILLS
6. Perform operation using various attachments	6.1 Site and weather conditions are considered before operation 6.2 Engine RPM is set at desired operating condition. 6.3 Safe work procedures and practices are observed during operation based on OSH standards and manufacturer's manual 6.4 Hydraulic excavator is positioned according to operating procedures. 6.5 Various attachments are positioned according to manufacturer's manual 6.6 Operation of various attachments are observed during operation 6.7 Unexpected situations are responded in line with company rules and regulations 6.8 PPE is used in accordance with Rule 1080 Occupational Safety and Health Standards	6.1 DOLE Department Order No. 13 s. 1998 Guidelines Governing Occupational Safety and Health in the Construction Industry 6.2 Signs and symbols 6.3 Company rules and regulations 6.4 Manufacturer's manual 6.5 Site and weather conditions 6.6 Conversion of units 6.7 Clearance and distances 6.8 Safety devices 6.9 Procedures in using various attachments 6.10 Factors affecting productivity 6.11 Productivity work measurements 6.12 Ways of improving productivity	6.1 Performing operation using various attachments 6.2 Interpreting sign and symbols 6.3 Identifying aspects and hazards 6.4 Following company rules and regulations 6.5 Interpreting manufacturer's manual 6.6 Using PPE 6.7 Applying productive methods and techniques

RANGE OF VARIABLES

VARIABLE	RANGE
1. Potential hazards	May include: 1.1 Other equipment 1.2 Building 1.3 Deep excavation 1.4 Sloping ground 1.5 Uneven terrain 1.6 Overhead “live” electrical wires 1.7 Underground utilities 1.8 Unstable ground
2. Unexpected situations	May include: 2.1 Sudden engine breakdown 2.2 Busted hydraulic hose and oil leakages 2.3 Hitting high tension wire 2.6 Sudden ground failure 2.8 Force majeure e.g., earthquake, tornado, typhoon 2.9 Operator fatigue or sickness/condition 2.10 Accidents/incidents
3. Attachments	May include: 3.1 Bucket 3.2 Hammer 3.3 Pulverizers 3.4 Augers 3.5 Shears 3.6 Grapples 3.7 Magnets 3.8 Breaker
4. Work equipment	May include: 4.1 Boom 4.2 Arm 4.3 Bucket 4.4 Blade (small and medium size unit)
5. Excavated materials	May include: 5.1 Boulders 5.2 Soil 5.3 Sand 5.4 Limestone 5.5 Debris 5.6 Coal 5.7 Landfill 5.8 Ore 5.9 Silt

VARIABLE	RANGE
6. Excavation dimensions	May include: 6.1 Depth 6.2 Reach 6.3 Width 6.4 Height
7. Ground condition	7.1 Soft 7.2 Hard 7.3 Muddy 7.4 Rocky 6.5 Loose
8. Mobile/stationary equipment	8.1 Rigid and articulated hauler truck 8.2 Dump truck 8.3 Hopper 8.4 Conveyor 8.5 Bottom dump trailer
9. Classification of the load	May include: 9.1 Reinforced concrete pipes 9.2 Rebars 9.3 Steel pipes 9.4 Water pump
10. Load information	May include: 10.1 Bill of ladings 10.2 Packing and shipping list 10.3 Delivery receipt 10.4 Dimension

EVIDENCE GUIDE

1. Critical aspects of evidence to be considered	**Assessment requires evidence that the candidate:** 1.1 Travelled the hydraulic excavator 1.2 Load and unload hydraulic excavator to low-bed trailer/truck 1.3 Perform excavation work 1.4 Performed loading operation 1.5 Performed lifting operation 1.6 Observed safety measures applicable to worksite operation 1.7 Communicated effectively with others to ensure effective work operation
2. Resource implications	**The following resources should be provided:** 2.1 Access to hydraulic excavator and job site/terrain 2.2 Available loads 2.3 Informative signages 2.4 PPE
3. Method of assessment	**Competency in this unit may be assessed through**: 3.1 Written Examination 3.2 Direct observation / Demonstration with Oral Questioning
4. Context for assessment	4.1 Competency may be assessed in actual workplace or at the designated TESDA Accredited Assessment Center

SECTION 3 TRAINING ARRANGEMENTS

These standards are set to provide technical and vocational education and training (TVET) providers with information and other important requirements to consider when designing training programs for **HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR) NC II**.

They include information on curriculum design; training delivery; trainee entry requirements; tools and equipment; training facilities; and trainer's qualification.

3.1 CURRICULUM DESIGN

TESDA shall provide the training on the development of competency-based curricula to enable training providers develop their own curricula with the components mentioned below.

Delivery of knowledge requirements for the basic, common and core units of competency specifically in the areas of mathematics, science/technology, communication/language and other academic subjects shall be contextualized. To this end, TVET providers shall develop a Contextual Learning Matrix (CLM) to accompany their curricula.

Course Title: HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR) NC II

Nominal Training Duration: **37 Hours Basic Competencies**
24 Hours Common Competencies
120 Hours Core Competencies

40 Hours - Supervised Industry Learning (SIL)

Total - 221 Hours

Course Description:

This course is designed to enhance the knowledge, skill and attitudes of HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR) NC II in accordance with industry standards. This covers competencies that a person must achieve in performing pre and post-operation procedures, performing basic preventive maintenance servicing and performing productive operation for hydraulic excavator.

To complete the course, all units prescribed for this qualification must be achieved:

BASIC COMPETENCIES
(37 HOURS)

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
1. Participate in workplace communication	1.1. Obtain and convey workplace information	• Describe Organizational policies • Read: ○ Effective communication ○ Written communication ○ Communication procedures and systems • Identify: ○ Different modes of communication ○ Medium of communication ○ Flow of communication ○ Available technology relevant to the enterprise and the individual's work responsibilities • Prepare different Types of question • Gather different sources of information • Apply storage system in establishing workplace information • Demonstrate Telephone courtesy	• Group discussion • Lecture • Demonstration	•Oral evaluation •Written examination •Observation	2 Hours
	1.2. Perform duties following workplace instructions	• Read: ○ Written notices and instructions ○ Workplace interactions and procedures • Read instructions on work related forms/documents • Perform workplace duties scenario following workplace instructions	• Group discussion • Lecture • Demonstration	•Oral evaluation •Written examination •Observation	2 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration

	1.3. Complete relevant work related documents	• Describe Communication procedures and systems
		• Read:
		  ○ Meeting protocols
		  ○ Nature of workplace meetings
		  ○ Workplace interactions
		  ○ Barriers of communication
		• Read instructions on work related forms/documents
		• Practice:
		  ○ Estimate, calculate and record routine workplace measures
		  ○ Basic mathematical processes of addition, subtraction, division and multiplication
		• Demonstrate office activities in:
		  ○ workplace meetings and discussions scenario
		• Perform workplace duties scenario following simple written notices
		• Follow simple spoken language
		• Identify the different Non-verbal communication
		• Demonstrate ability to relate to people of social range in the workplace
		• Gather and provide information in response to workplace requirements
		• Complete work related documents
			• Group discussion
			• Lecture
			• Demonstration
			• Role play
				• Oral evaluation
				• Written examination
				• Observation
					2 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
2. Work in a team environment	2.1 Describe team role and scope	• Discussion on team roles and scope • Participate in the discussion: ○ Definition of Team ○ Difference between team and group ○ Objectives and goals of team • Locate needed information from the different sources of information	• Lecture/ Discussion • Group Work • Individual Work • Role Play	• Role Play • Case Study • Written Test	1 Hour
	2.2 Identify one's role and responsibility within team	• Role play: ○ individual role and responsibility • Role Play ○ Understanding Individual differences • Discussion on gender sensitivity	•Role Play •Lecture/ Discussion	• Role Play • Written Test	1 Hour
	2.3 Work as a team member	• Participate in group planning activities • Role play: Communication protocols • Participate in the discussion of standard work procedures and practices	•Group work •Role Play •Lecture/ Discussion	• Role Play • Written Test	1 Hour
3. Solve/address routine problems	3.1 Identify routine problems	• Review of the current industry hardware and software products and services • Identify correctly the industry maintenance, service and helpdesk practices, processes and procedures • Make use of the industry standard diagnostic tools • Share best practices in determining basic malfunctions and resolutions	•Group discussion •Lecture •Demonstration •Role playing	• Case Formulation • Life Narrative Inquiry (Interview) • Standardized test	1 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		to general problems in the workplace • Analyze routine/procedural problems			
	3.2 Look for solutions to routine problems	• Review of the current industry hardware and software products and services • Identify correctly the industry maintenance, service and helpdesk practices, processes and procedures • Make use of the industry standard diagnostic tools • Share best practices in determining basic malfunctions and resolutions to general problems in the workplace • Formulate possible solutions to problems and document procedures for reporting	•Group discussion •Lecture •Demonstration •Role playing	• Case Formulation • Life Narrative Inquiry (Interview) • Standardized test	1 Hour
	3.3 Recommend solutions to problems	• Discuss standard operating procedures and documentation processes	•Group discussion •Lecture •Demonstration •Role playing	• Case Formulation • Life Narrative Inquiry (Interview) • Standardized test	1 Hour
4. Develop Career and Life Decisions	4.1 Manage one's emotion	• Demonstrate self-management strategies that assist in regulating behavior and achieving personal and learning goals • Explain enablers and barriers in achieving personal and career goals	• Discussion • Interactive Lecture • Brainstorming • Demonstration • Role-playing	• Demonstration or simulation with oral questioning • Case problems involving workplace	1 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
		• Identify techniques in handling negative emotions and unpleasant situation in the workplace such as frustration, anger, worry, anxiety, etc. • Manage properly one's emotions and recognize situations that cannot be changed and accept them and remain professional • Recall instances that demonstrate self- discipline, working independently and showing initiative to achieve personal and career goals • Share experiences that show confidence, and resilience in the face of setbacks and frustrations and other negative emotions and unpleasant situations in the workplace		diversity issues	
	4.2 Develop reflective practice	• Enumerate strategies to improve one's attitude in the workplace • Explain Gibbs' Reflective Cycle/Model (Description, Feelings, Evaluation, Analysis, Conclusion, and Action plan) • Use basic SWOT analysis as self-assessment strategy • Develop reflective practice through realization of limitations, likes/ dislikes; through showing of self-confidence • Demonstrate self-acceptance and being able to accept challenges	• Small Group Discussion • Interactive Lecture •Brainstorming • Demonstration •5 Role-playing	• Demonstration or simulation with oral questioning • Case problems involving workplace diversity issues	1 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	4.3 Boost self-confidence and develop self-regulation	• Describe the components of self-regulation based on Self-Regulation Theory (SRT) • Explain personality development concepts • Cite self-help concepts (e. g., 7 Habits by Stephen Covey, transactional analysis, psycho-spiritual concepts) • Perform effective communication skills – reading, writing, conversing skills • Show affective skills – flexibility, adaptability, etc. • Determine strengths and weaknesses	• Small Group Discussion • Interactive Lecture • Brainstorming • Demonstration • Role-playing	• Demonstration or simulation with oral questioning • Case problems involving workplace diversity issues	1 Hour
5. Contribute to workplace innovation	5.1 Identify opportunities to do things better	• Identify different roles of individuals in contributing to doing things better in the workplace • Appreciate positive impacts and challenges in innovation • Show mastery of the different types of changes and levels of participation in the workplace • Discuss 7 habits of highly effective people	•Interactive Lecture •Appreciative Inquiry •Demonstration •Group work	• Psychological and behavioral Interviews • Performance Evaluation • Life Narrative Inquiry • Review of portfolios of evidence and third-party workplace reports of on-the-job performance. • Standardized assessment of character strengths and virtues applied	1 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	5.2 Discuss and develop ideas with others	• Identify different roles of individuals in contributing to doing things better in the workplace • Appreciate positive impacts and challenges in innovation • Show mastery of the different types of changes and levels of participation in the workplace • Discuss 7 habits of highly effective people • Communicate ideas through small group discussions and meetings	•Interactive Lecture •Appreciative Inquiry •Demonstration •Group work	• Psychological and behavioral Interviews • Performance Evaluation • Life Narrative Inquiry • Review of portfolios of evidence and third-party workplace reports of on-the-job performance. • Standardized assessment of character strengths and virtues applied	1 Hour
	5.3 Integrate ideas for change in the workplace	• Identify different roles of individuals in contributing to doing things better in the workplace • Appreciate positive impacts and challenges in innovation • Show mastery of the different types of changes and levels of participation in the workplace • Discuss 7 habits of highly effective people • Communicate ideas through small group discussions and meetings • Demonstrate basic skills in data analysis	•Interactive Lecture •Appreciative Inquiry •Demonstration •Group work	• Psychological and behavioral Interviews • Performance Evaluation • Life Narrative Inquiry • Review of portfolios of evidence and third-party workplace reports of on-the-job performance. • Standardized	1 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
				assessment of character strengths and virtues applied	
6. Present relevant information	6.1 Gather data/ information	• Lecture and discussion on: ○ Organisational protocols ○ Confidentiality and accuracy ○ Business mathematics and statistics ○ Legislation, policy and procedures relating to the conduct of evaluations • Reviewing data/ information	• Group discussion • Lecture • Demonstration • Role Play	• Oral evaluation • Written Test • Observation • Presentation	2 Hours
	6.2 Assess gathered data/ information	• Lecture and discussion on: ○ Data analysis techniques/ procedures ○ Organisational values, ethics and codes of conduct ○ Trends and anomalies • Computing business mathematics and statistics • Application of data analysis techniques	• Group discussion • Lecture • Demonstration • Role Play • Practical exercises	• Oral evaluation • Written Test • Observation • Presentation	3 Hours
	6.3 Record and present information	• Lecture and discussion on: ○ Reporting requirements to a range of audiences ○ Recommendations for possible improvements • Analysis and comparison of interim and final reports' outcomes • Reporting of data findings	• Group discussion • Lecture • Demonstration • Role Play • Practical exercises	• Oral evaluation • Written Test • Observation • Presentation	3 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
7. Practice Occupational Safety And Health Policies And Procedures	7.1 Identify OSH compliance requirements	• Discussion regarding: - Hierarchy of Controls - Hazard Prevention and Controls - Work Standards and Procedures - Personal Protective Equipment	• Lecture • Group Discussion	• Written Exam • Demonstration • Observation • Interviews / Questioning	1 Hour
	7.2 Prepare OSH requirements for compliance	• Identification of required safety materials, tools and equipment • Handling of safety control resources	• Lecture • Group Discussion	• Written Exam • Demonstration • Observation • Interviews / • Questioning	1 Hour
	7.3 Perform tasks in accordance with relevant OSH policies and procedures	• Discussion of General OSH Standards and Principles • Performing industry related work activities in accordance with OSH Standards	• Lecture • Group Discussion	• Written Exam • Demonstration • Observation • Interviews / • Questioning	2 Hours
8. Exercise Efficient and Effective Sustainable Practices in the Workplace	8.1 Identify the efficiency and effectiveness of resource utilization	- Discussion on the process how Environmental Policies coherence is achieved • Discussion on Necessary Skills in response to changing environmental policies needs - Waste Skills - Energy Skills - Water Skills - Building Skills - Transport Skills - Material Skills	• Lecture • Group Discussion • Simulation • Demonstration	• Written Exam • Demonstration • Observation • Interviews / • Questioning	1 Hour

Unit of Competency	Learning Outcomes	Learning Activities	Methodology	Assessment Approach	Nominal Duration
	8.2 Determine causes of inefficiency of resource utilization	• Discussion of Environmental Protection and Resource Efficiency Targets • Analysis on the Relevant Work Procedure	• Lecture • Group Discussion • Demonstration	• Written Exam • Demonstration • Observation • Interviews / • Questioning	1 Hour
	8.3 Convey inefficient and ineffective environmental practices	• Identification of (re)training needs and usage of environment friendly methods and technologies • Identification of environmental corrective actions • Practicing Environment Awareness	• Lecture • Group Discussion • Role Play • Demonstration	• Written Exam • Demonstration • Observation • Interviews / • Questioning	1 Hour
9. Practice Entrepreneurial Skills in the Workplace	9.1 Apply entrepreneurial workplace best practices	• Case studies on Best entrepreneurial practices • Discussion on Quality procedures and practices • Case studies on Cost consciousness in resource utilization	• Case Study • Lecture/Discussion	• Case Study • Written Test • Interview	1 Hour
	9.2 Communicate entrepreneurial workplace best practices	• Discussion on communicating entrepreneurial workplace best practices	• Lecture/Discussion	• Written Test • Interview	1 Hour
	9.3 Implement cost-effective operations	• Case studies on Preservation, optimization and judicious use of workplace resources	• Case Study • Lecture/Discussion	• Case Study • Written Test • Interview	2 Hours

COMMON COMPETENCIES
(24 HOURS)

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
1. Prepare construction materials and tools	1. 1 Identify materials	• Identifying tools according to the job requirements • Identifying materials and accessories according to the job requirements	• Lecture-demonstration • Group discussion • PowerPoint presentation	• Demonstration with oral questioning • Written examination • Portfolio (credentials)	1 Hour
	1.2 Requisition materials	• Preparing material take-off • Requesting materials and tools	• Simulation • Discussion	• Demonstration with oral questioning	1 Hour
	1.3 Receive and inspect materials	• Checking and inspecting materials and tools • Storing/ stacking of tool and materials	• Practical Exercise • Demonstration	• Written / Oral Test • Demonstration with oral questioning	2 Hours
2. Observe procedures, specifications and manuals of instructions	2.1 Identify and access specification/ manuals	• Identifying manuals and specifications • Accessing information and data	• Lecture-demonstration	• Demonstration with oral questioning • Written examination	2 Hours
	2.2 Interpret manuals	• Interpreting symbols and specifications • Accessing information and data • Applying conversion of units of measurements	• Actual demonstration • Group discussion	• Demonstration with oral questioning • Written examination	2 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
	2.3 Apply information in manual	• Applying information from manuals	• Demonstration • Group discussion	• Demonstration with oral questioning	2 Hours
	2.4 Store Manual	• Storing and maintaining manuals	• Demonstration • Group discussion	• Demonstration with oral questioning • Practical and oral exam	2 Hours
3. Interpret technical drawings and plans	3.1 Analyze signs, symbols and data	• Identifying signs, symbols and data • Classifying signs, symbols and data	• Discussion • Demonstration	• Demonstration with oral questioning • Written examination	2 Hours
	3.2 Interpret drawings and plans	• Identifying tools, supplies, materials and equipment • Recognizing components, assemblies or objects • Identifying dimensions	• Discussion • Demonstration	• Demonstration with oral questioning • Written examination	2 Hours
4.Perform mensurations and calculations	4.1 Select measuring instruments	• Selecting measuring instruments	• Lecture-demonstration • Group discussion	• Demonstration with oral questioning	2 Hours
	4.2 Carry out measurements and calculations	• Interpreting formulas for volume, areas, perimeters of plane and geometric figures • Handling of measuring instruments	• Group discussion • Practical Lab • Demonstration	• Written examination • Third party report • Demonstration with oral questioning	2 Hours

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
5. Maintain tools and equipment	5.1 Check condition of tools and equipment	• Maintaining tools and equipment • Handling of tools and equipment • Identifying tools and equipment defects	• Lecture-demonstration • Group discussion	• Demonstration with oral questioning	1 Hour
	5.2 Perform basic preventive maintenance	• Handling of tools and equipment • Performing preventive maintenance	• Simulation • Group discussion • Practical Lab • Demonstration	• Written examination • Third party report • Demonstration with oral questioning	2 Hours
	5.3 Store tools and equipment	• Storing tools and equipment • Handling of tools and equipment	• Demonstration • Group discussion • Practical Lab	• Practical exam • Written examination • Demonstration with oral questioning	1 Hour

CORE COMPETENCIES
(120 HOURS)

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	Assessment Methods	Nominal Duration
1. Perform pre- and post-operation procedures for Hydraulic excavator	1.1 Perform visual check	• Select personal protective equipment • Select hydraulic excavator capacity • Identify and explain operator serviceable parts • Perform inspection of equipment	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	16 hours
	1.2 Perform "B L O W A F" check	• Explain and perform procedures in BLOWAF check for engine type • Explain and perform procedures in checking battery-operated type hydraulic excavator	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	
	1.3 Perform visual check for upper, lower structure and attachments	• Explain procedures in visual check for upper, lower structure and attachments • Identify abnormal conditions • Perform visual check upper, lower structure and attachments	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	
	1.4 Perform operation check	• Explain and perform start-up and warming procedures • Explain procedures in conducting walk-around check while the hydraulic excavator is power on • Perform operation of hydraulic excavator components and safety devices	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	• Assessment Methods	Nominal Duration
	1.5 Perform post-Operation procedures	• Explain walk around procedures while engine is cooling down • Explain and perform parking and shut-down procedures • Explain how to accomplish DETR	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	
2. Perform basic preventive maintenance servicing for hydraulic excavator	2.1 Perform adjustment or replacement for noted defects	• Explain procedures in performing adjustments or replacements for noted defects • Explain usage of basic hand tools and portable powered tools • Perform adjustments or replacements for minor defects	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	24 hours
	2.2 Perform basic preventive maintenance servicing (PMS)	• Explain procedures in basic preventive maintenance servicing • Enumerate Operator's Serviceable parts • Execute basic preventive maintenance servicing (PMS)	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	
	2.3 Prepare equipment reports	• Explain procedures in accomplishing equipment reports • Explain how to accomplish equipment reports	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	• Assessment Methods	Nominal Duration
3. Perform productive operation for hydraulic excavator	3.1 Travel the hydraulic excavator	• Enumerate different road and weather conditions • Identify potential hazards in work area • Explain procedures in responding to unexpected situations • Perform travel operation	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	80 hours
	3.2 Load and unload hydraulic excavator to low-bed trailer/truck	• Perform loading and unloading of hydraulic excavator to low-bed trailer • Explain and perform securing of hydraulic excavator • Explain and demonstrate verbal instructions and signals	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	
	3.3 Perform excavation work	• Explain and perform positioning of work equipment • Explain and perform excavation work	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	

Unit of Competency	Learning Outcomes	Learning Activities	Methodologies	• Assessment Methods	Nominal Duration
	3.4 Perform loading operation	• Explain and perform positioning of hydraulic excavator • Explain and perform loading operation procedures	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	
	3.5 Perform lifting operation	• Explain how to determine weight and classification of the load • Explain how to read and interpret load chart • Explain and perform lifting operation procedures	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	
	3.6 Perform operation using various attachments	• Explain usage of various attachment • Explain and perform operation using various attachment	• Lecture • Practical / Demonstration	• Written examination • Demonstration with oral questioning	

3.2 TRAINING DELIVERY

1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.

    a. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards)

    b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies;

    c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology.

    d. Assessment is based in the collection of evidence of the performance of work to the industry required standards;

    e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence.

    f. Training program allows for recognition of prior learning (RPL) or current competencies;

    g. Training completion is based on satisfactory performance of all specified competencies.

2. 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 and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:

2.1 Institution-Based:

- Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP;

- 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, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat.
- The classroom-based or in-center instruction uses of learner-centered methods as well as laboratory or field-work components.

2.1 Enterprise-Based:

- Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation.

- Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson.

- Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

2.2 **Community-Based** – Community-Based – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).

3.3 TRAINEE ENTRY REQUIREMENTS

Trainees or students who wish to enter this training should possess the following requirements:

- At least Junior High School Level Completer or an Alternative Learning System (ALS) Certificate of Completion with grade 10 equivalent holder
- Must possess good communication skills
- Can perform basic mathematical computation
- Physically fit

3.4 LIST OF TOOLS, EQUIPMENT AND MATERIALS

List of tools, equipment and materials for the training of a maximum of 25 trainees for Hydraulic Excavator Operation NC II are as follows:

TOOLS		EQUIPMENT		MATERIALS	
QTY		**QTY**		**QTY**	
1 set	Wrenches (box and open-end 8-24 mm-metric & 7/16 –1" - English)	1 unit	Hydraulic excavator certified by Third Party accredited by DOLE-OHSC (Memorandum of Agreement (MOA)/ rental)	5 kgs.	Multi- purpose grease
5 pcs.	Hammer ballpeen (3 - 4 lbs.)	1 unit	Vacuum cleaner (heavy duty), 220volts	20 liters	Engine oil (SAE 15w40)
5 pcs.	Pliers (mechanical 10 ")	1 unit	Portable electric air compressor, 180 cfm	20 liters	Hydraulic / steering fluid (TELLUS 68/10W)
5 pcs.	Adjustable wrench (8",10", 12",18 ") 1 piece for each size	1 unit	High pressure washer, 150-250 psi	20 liters	PTO / differential and transfer case drive (gear oil GP90/ 140)
2 pcs.	Grease gun (portable)	1 unit	Low-bed trailer/truck (MOA / rental)	20 liters	Automatic Trans-mission oil (ATF)
5 pcs.	Screw driver (10", flat)	1 unit	Fire extinguisher, 10 lbs., dry chemical	20 liters	Manual transmission oil GP 90/140
5 pcs.	Screw driver (10", Philips)	1 unit	Hydraulic Excavator Simulator (Optional) Display (Screen, Monitor)Controls, Software and Hardware Components, Seat with Seatbelt, Power Supply (110-230 V 50-60Hz)	4 liters	Water coolant
5 pcs.	Putty knife, 2" width	25 pcs	Safety Equipment/PPE (Safety vest, Gloves, Goggles, Dust mask, Hard Hat)	200 liters	Diesel fuel
5 pcs.	Pry bar (heavy duty, 18")	5 pairs	Safety Equipment/PPE (Safety Shoes)	20 liters	Battery distilled water
2 pcs.	Tire gauge (0-150 psi)			1 set	Primary &

TOOLS		EQUIPMENT		MATERIALS	
QTY		**QTY**		**QTY**	
					secondary air filter
				2 pcs	Fuel filter
				1 pc.	Hydraulic excavator miniature, (1:50 scale)
				1 pc	Operator's manual with load chart
				1 pc	Fire extinguisher

3.5 TRAINING FACILITIES

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 (Maintenance Workshop)	2 x 2	4 sq.m per student	100
Lecture Room	8 x 6	48	48
Learning Resource Center	4 x 6	24	24
Facilities	6.5 x 8	52	52
Working field	10 x 20	200	200
TOTAL AREA			**424**

NOTE: Training Center may enter into Memorandum of Agreement (MOA) with industry for use of facilities and heavy equipment

3.6 TRAINERS' QUALIFICATION

- Holder of National TVET Trainer Certificate Level I (NTTC Level I) in Heavy Equipment Operation (Hydraulic Excavator) NC II
- Must have completed the 40-Hour Construction Occupational Safety and Health (COSH) per Department Order No. 13 s. 1998, Guidelines Governing Occupational Safety and Health in the Construction Industry conducted by OSHC and DOLE accredited Safety Training Organizations
- Must be computer-literate
- Must have at least 4 years work/industry experience

3.7 INSTITUTIONAL ASSESSMENT

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of Competency.

SECTION 4 ASSESSSMENT AND CERTIFICATION ARRANGEMENT

Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards.

The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to an employable unit(s) of competency in partial fulfillment of the requirements of the national qualification.

4.1 NATIONAL ASSESSMENTAND CERTIFICATION ARRANGEMENTS

4.1.1 A National Certificate (NC) is issued when a candidate has demonstrated competence on all units of competency in a qualification with a promulgated Training Regulations.

4.1.2 Individuals wanting to be certified will have to be assessed in accordance with the requirements identified in the relevant unit/s of competency.

4.1.3 Assessment shall cover all the competencies of the qualification with the basic and common units integrated or assessed concurrently with the core units of competency.

4.1.4 The following are qualified to apply for assessment and certification:
- Graduates of formal, non-formal and informal institutions and enterprise-based training programs
- Experienced Workers (wage employed or self-employed)

4.1.5 For the renewal of valid or expired National Certificate (NC) in Heavy Equipment Operation (Hydraulic Excavator) NC II, the individual/holder will have to undergo assessment in the amended TR for Heavy Equipment Operation (Hydraulic Excavator) NC II.

4.1.6 The industry shall determine assessment and certification requirements for each qualification with promulgated Training Regulations: It includes the following:
a. Entry requirements for candidates
b. Evidence gathering methods
c. Qualification requirements of competency assessors
d. Specific assessment and certification arrangements as identified by industry

4.2 COMPETENCY ASSESSMENT REQUISITE

4.2.1 Self-Assessment Guide. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment. This document can:

a. Identify the candidate's skills and knowledge
b. Highlight gaps in candidate's skills and knowledge
c. Provide critical guidance to the assessor and candidate on the evidence that need to be presented
d. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior `

4.2.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage the assessment for National Certification.

4.2.3 **Accredited Competency Assessor.** Only accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.

ANNEX A

COMPETENCY MAP - CONSTRUCTION Sector
(HEAVY EQUIPMENT OPERATION)
HEAVY EQUIPMENT OPERATION (HYDRAULIC EXCAVATOR) NC II

BASIC COMPETENCIES	Receive and respond to workplace communication	Work with others	Solve/address routine problems	Enhance self-management skills	Support Innovation	Access and maintain information	Follow occupational safety and health policies and procedures	Apply environmental work standards	Adopt entrepreneurial mindset in the workplace
	Participate in workplace communication	Work in Team Environment	Solve/address general workplace problems	Develop career and life decisions	Contribute to workplace innovation	Present relevant information	Practice occupational safety and health policies and procedures	Exercise efficient and effective sustainable practices in the workplace	Practice entrepreneurial skills in the workplace
	Lead workplace communication	**Lead small teams**	**Apply critical thinking and problem-solving techniques in the workplace**	**Work in a diverse environment**	**Propose methods of applying learning and innovation in the organization**	**Use information systematically**	**Evaluate occupational safety and health work practices**	**Evaluate environmental work practices**	**Facilitate entrepreneurial skills for micro-small-medium enterprises (MSMEs)**

BASIC COMPETENCIES

Utilize specialize specialized communication skill	Develop and lead teams	Perform higher order thinking processes and apply techniques in the workplace	Contribute to the practice of social justice in the workplace	Manage innovative work instructions	Manage and evaluate usage of information	Lead in improvement of Occupational Safety and Health Program, Policies and Procedures	Lead towards improvement of environmental work programs, policies and procedures	Sustain entrepreneurial skills
Manage and sustain effective communication strategies	Manage and sustain high performing teams	Evaluate higher order thinking skills and adjust problem solving techniques	Advocate strategic thinking for global citizenship	Incorporate innovation into work procedures	Develop systems in managing, and maintaining information	Manage implementation of OSH programs in the workplace	Manage implementation of environmental program in the workplace	Develop and sustain a high-performing enterprise

COMMON COMPETENCIES

Prepare construction materials and tools	Observe procedures, specifications and manual of instructions	Interpret technical drawings and plans	Perform mensurations and calculations	Maintain tools and equipment

CORE COMPETENCIES	Perform pre and post operation procedures for truck mounted crane	Perform basic preventive maintenance servicing for truck mounted crane	Perform productive operation for truck mounted crane	Perform pre and post operation procedures for rough terrain crane	Perform basic preventive maintenance servicing for rough terrain crane
	Perform productive operation for rough terrain crane	Perform pre and post operation procedures for crawler crane	Perform basic preventive maintenance servicing for crawler crane	Perform productive operation for crawler crane	Perform pre and post operation procedures for forklift
	Perform basic preventive maintenance servicing for forklift	Perform productive operation for forklift	Perform pre and post operation procedures for tower crane	Perform basic preventive maintenance servicing for tower crane	Perform productive operation for tower care
	Perform pre and post operation procedures for overhead and gantry crane	Perform basic preventive maintenance servicing overhead and gantry crane	Perform productive operation for overhead and gantry crane	Perform pre and post operation procedures for hydraulic excavator	Perform basic preventive maintenance servicing for hydraulic excavator
	Perform productive operation for hydraulic excavator	Perform pre and post operation procedures for on-highway dump truck (rigid)	Perform basic preventive maintenance servicing for on-highway dump truck (rigid)	Perform productive operation for on-highway dump truck (rigid)	

Glossary of Terms

For the purpose of this Competency Standard, the words

1. Various attachment	Refers to mechanism which is attached to carriage, either permanently or temporarily, to help in proper engagement of the load
2. Hydraulic excavator	Refers to heavy equipment consisting of a boom, stick, bucket and cab on a rotating platform known as the "upper structure". The upper structure sits atop an undercarriage or lower structure with tracks or wheels.
3. Standard	Refers to a degree or level of requirement set by the manufacturer.
4. Hazards	Refers to situation that poses threat to life, health, property, or environment.
5. Load chart	Refers to schematic or graphic device to indicate the working load limit to be performed by hydraulic excavator.
6. Upper structure	Refers to the “house” of hydraulic excavator which includes the operator cab, counterweight, engine, fuel and hydraulic oil tanks. The upper structure attaches to the undercarriage by way of a center pin.
7. Lower structure	Refers to the “undercarriage” of hydraulic excavator which includes the blade , tracks, track frame, and final drives.
8. Computer Literate	Is defined as the knowledge and ability to utilize computers and related technology efficiently, with a range of skills covering levels from elementary use to computer programming and advanced problem solving.

TRAINING REGULATIONS (TR)
DOCUMENT REVISION HISTORY

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Lessors, Inc. (ACEL)
Pasig City

The PARTICIPANTS in the Validation of this Training Regulations

- Anseca Development Corp.
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- Civic Merchandising Inc.
  Quezon City
- EEI Corporation
  Calamba City
- First Balfour Inc.
  Parañaque City
- Occupational Safety and Health
  Center (OSHC)
  Quezon City
- Bureau of Working Condition - DOLE
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- J.E. Manalo and Co. Inc.
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- M.D.C. Asia Pro
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- MIESCOR
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- Monark Equipment
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