



COMPETENCY STANDARD

AUTOMOTIVE SERVICE AND REPAIR SECTOR

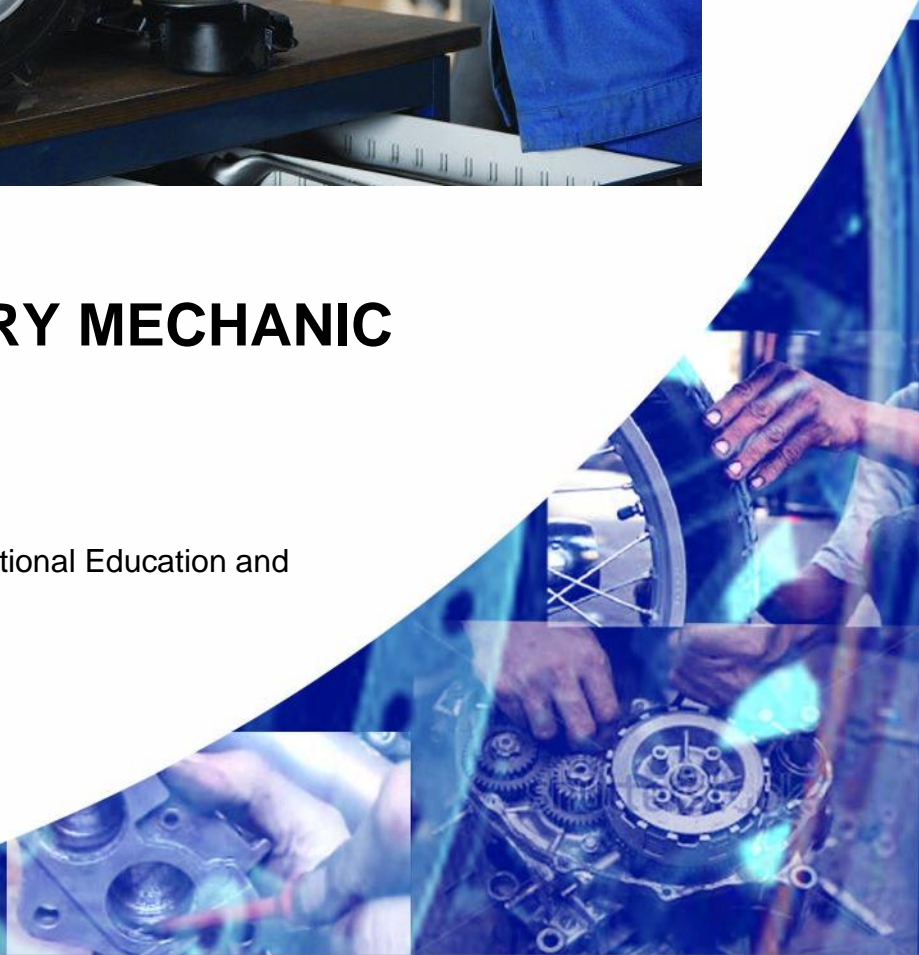


AGRO-MACHINERY MECHANIC

SKILLS LEVEL III

ISCO 7233

ADB Grant 0211-LAO
Strengthening Technical and Vocational Education and
Training (STVET) Project





**ADB Grant 0211-LAO
Strengthening Technical and Vocational Education and Training (STVET) Project**

LAO PDR

**OCCUPATION AREA: MACHINERY MECHANICS AND REPAIRERS
ISCO 723**

**JOB TITLE: AGRO-MACHINERY MECHANICS
ISCO 7233**

COMPETENCY STANDARD: AUTOMOTIVE SERVICE & REPAIR III

NLVQF: III

<i>Status</i>	<i>Responsible person</i>	<i>Date</i>
Draft I Prepared BY ON:	SG & PP	2012 JUNE
Draft Edit prepared BY ON::	SG & PP	2012 JULY 05
Presented TO ON	TL – STVETP	2012 JULY 09
Presented TO ON		
Approved I for use BY ON:		
Approved II for use BY ON:		
Revision 1 DATE:		
Revision 2 DATE		

CONTENTS

A	FOREWORD.....	5
A.1	PROJECT TITLE	5
A.2	PROJECT DONOR & NUMBER	5
B	PURPOSE OF THIS COMPETENCY STANDARD	5
C	COMPETENCY STANDARD/ QUALIFICATION/ JOB DESCRIPTION	5
D	OUTLINE OF THIS COMPETENCY STANDARD	6
E	BASIC UNITS OF COMPETENCY	9
	UNIT 1 LEAD WORKPLACE COMMUNICATION	11
	UNIT 2 LEAD SMALL TEAMS.....	14
	UNIT 3 PRACTICE NEGOTIATION SKILLS	17
	UNIT 4 SOLVE PROBLEMS RELATED TO WORK ACTIVITIES	20
	UNIT 5 USE MATHEMATICAL CONCEPTS & THEORIES.....	24
	UNIT 6 USE RELEVANT TECHNOLOGIES	26
	UNIT 7 APPLY GENDER AND SOCIAL EQUITY PRINCIPLES AND POLICIES	29
F	COMMON UNITS OF COMPETENCY	35
	UNIT 8 OBSERV POCEDURES, SPECIFICATIOIS & MANUALS OF INSTRUCTION	37
	UNIT 9 INTERPRET TECHNICAL DRAWEING & PLANS	40
	UNIT 10 PERFORM MENSURATION AND CALCULATION.....	44
	UNIT 11 APPLY OCCUPATIONAL HEALTHS & SAFETY REQUIERMENTS	48
	UNIT 12 MOVE VEHICLE	53
	UNIT 13 MOUNT AND DEMOUNT SYSTEM COMPONENTS	56
	UNIT 14 PERFORM PERIODICAL MAINTENANCE	60
G	CORE UNITS OF COMPETENCY.....	65
	UNIT 15 REPAIR BRAKE SYSTEM.....	67
	UNIT 16 REPAIR SMALL ENGINE	72
	UNIT 17 SERVICE BASIC ELECTRICAL SYSTEM	77
	UNIT 18 SERVICE PETROL FUEL SYSTEM	82
	UNIT 19 REPAIR STEERING AND SUSPENSION SYSTEM	86
	UNIT 20 REPAIR, BALANCE AND ALIGN WHEEL AND TIRES	91
	UNIT 21 SERVICE DIESEL FUEL SYSTEM.....	96
	UNIT 22 REPAIR ENGINE WEAR	101
	UNIT 23 REPAIR IGNITION SYSTEM.....	106
	UNIT 24 REPAIR AGRO-MACHINERY HYDRAULIC SYSTEMS	111
	UNIT 25 REPAIR AGRICULTURAL MACHINERY EQUIPMENT.....	116
	UNIT 26 PERFORM ROUTINE BRAZING/WELDING	121
H	ANNEX	126

H.1	AWARD & PROGRESSION / ENTRY REQUIREMENTS	128
H.2	LAO AUTOMOTIVE SUB-SECTOR CODE.....	129
H.3	COMPETENCY STANDARD DEVELOPMENT TEAM	131

A Foreword

In order to ensure that the LAO PDR grows competitively over the coming years, we need to establish an ethos of excellence in everything that we do. This includes, particularly the Education & Employment sectors, as symbolized by Technical Vocational Education & Training (TVET).

Research has shown that countries without a functioning and effective TVET system will lose out in the competitiveness ratings, with a consequence negative impact on growth etc.

A.1 Project Title

Strengthen Technical Vocational Education & Training in LAO PDR

A.2 Project Donor & Number

ADB Grant No. 0211-LAO (SF)

B Purpose of this competency standard

The Purpose of the Competency Standard for the AUTOMOTIVE SERVICE AND REPAIR **Level III** is to provide a framework for Competency Based Training (CBT) Programmes resulting in Competent AGRO-MACHINERY MECHANICS to support the automotive service and repair industry/sector in Lao PDR.

The AUTOMOTIVE SERVICE AND REPAIR **Level III** is defined in reference to the Prime Minister Decree Number 0036/PM published in 2011, the Ministry of Education and Sport Decree Number 4697/MoES11 published 9 December 2011, the Manual for Developing Competency Standards published December 2011 and the ASEAN Regional Qualification Framework in TVET.

C Competency Standard/ Qualification/ Job Description

This Competency, Standards/ Qualification of AUTOMOTIVE SERVICE AND REPAIR III provide a structured occupational outcome for domestic & commercial AGRO-MACHINERY MECHANICS.

JOB DESCRIPTION

This qualification covers the skills and knowledge in Basic, Common & Core Competencies required by the automotive service and repair industry/sector for AGRO-MACHINERY MECHANICS to repair and maintain the electrical and mechanical systems and components of cars and light vehicle. It is suitable for entry into the automotive service and repair industry/sector at **NVQF Level III** in Lao PDR.

Person deemed competent in this qualification:

- has theoretical knowledge in AGRO-MACHINERY MECHANIC
- has a range of well-developed skills on AGRO-MACHINERY MECHANIC to repair and maintain

- can perform complicated fabrication work using complex/multi-function equipment
- work on jobs requiring minimal tolerance
- be responsible for the entrusted equipment
- solve routine work problems using basic methods, tools materials and information

JOB ROLES/EMPLOYMENT OUTCOMES

The Certificate **Level III** in AUTOMOTIVE SERVICE AND REPAIR is intended to prepare new employees or recognize and develop existing workers who are performing electrical and mechanical service and repair tasks in the automotive service and repair industry/sector.

Employment outcomes targeted by this qualification is AGRO-MACHINERY MECHANICS.

APPLICATION

The qualification is in line with CBT principles and is suitable for a Lao PDR Apprenticeship pathway

Where common/core units of competency are packaged to suit a particular industry sector or occupational outcome, Registered Training Organizations (RTOs) might issue, for example, a:

Certificate III in AUTOMOTIVE SERVICE AND REPAIR (specializing AGRO-MACHINERY MECHANIC)

It should be noted that a qualification with a specialization does not change the title of the qualification

CAREER PATH INFORMATION

CAREER PATH INTO THE QUALIFICATION

This qualification may be accessed by direct entry. Credit will be granted towards this qualification to those who have completed Certificate II in AUTOMOTIVE SERVICE AND REPAIR and work experiences on that Certificate Level.

CAREER PATH FROM THE QUALIFICATION

Further training pathways from this qualification include Certificate IV within the AUTOMOTIVE SERVICE AND REPAIR training package qualifications.

D Outline of this Competency Standard

This Competency Standard contains **Units of Competency** as detailed within. These **Units** form the basis for CBT Learning Programmes for AGRO-MACHINERY MECHANIC. Each **Unit** contains the required **Elements of Competency**. Each **Unit** being able to stand alone when applied in a work situation.

Each **Unit** can be amended in content or structure to meet the evolving needs of the AGRO-MACHINERY MECHANICS. Changes and amendments to this Competency Standard will be made in line with the existing Quality Assurance Procedures as approved by the appropriate authority.

This Competency Standard is structured in line with the approved Manual for Developing Competency Standards, developed as a part of the STVET programme. For Quality Assurance purposes, each Unit is coded in line with the example below:

Code Example

Occupation	Job	Sub Sector	Level	Unit Type	Unit No.	Version No
Machinery Mechanics and Repair	Agro-Machinery Mechanics	Engine	NLVQF	Core	Series No	
723	7233	2	3	3	008	01

Code example above displayed as:

723.7233.233.008.01

LAO AUTOMOTIVE SUB-SECTORS

Sub-Sector:

- 00 No sub-sector
- 10 General
- 20 Engine
- 30 Powertrain
- 40 Chassis & Suspension
- 50 Electrical
- 60 Body & Painting

Each Competency Standard for a Job contains a mix of Units structured as follows:

- Basic Units** – cover a range of Occupations
- Common Units** – Common to jobs in the automotive service and repair industry/sector
- Core Units** – Technical & Specific to this job

E BASIC UNITS OF COMPETENCY

UNIT 1 LEAD WORKPLACE COMMUNICATION

Unit Code	723.7231.031.001.01
Unit Descriptor	This unit covers the skills, knowledge and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

UNIT 1 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Communicate information about workplace processes	1.1 Appropriate communication method is selected 1.2 Multiple operations involving several topics areas are communicated accordingly 1.3 Questions are used to gain extra information 1.4 Correct sources of information are identified 1.5 Information is selected and organized correctly 1.6 Verbal and written reporting is undertaken when required 1.7 Communication skills are maintained in all situations
2. Lead workplace discussions	2.1 Response to workplace issues are sought 2.2 Response to workplace issues are provided immediately 2.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety 2.4 Goals/objectives and action plan undertaken in the workplace are communicated
3. Identify and communicate issues arising in the workplace	3.1 Issues and problems are identified as they arise 3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication 3.3 Dialogue is initiated with appropriate personnel 3.4 Communication problems and issues are raised as they arise

UNIT 1 Range of Variables

VARIABLES	RANGE
1. Methods of communication	1.1 Non-verbal gestures 1.2 Verbal 1.3 Face to face 1.4 Two-way radio 1.5 Speaking to groups 1.6 Using telephone 1.7 Written 1.8 Internet

UNIT 1 Evidence Guide

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Dealt with a range of communication/information at one time 1.2 Made constructive contributions in workplace issues 1.3 Sought workplace issues effectively 1.4 Responded to workplace issues promptly 1.5 Presented information clearly and effectively written form 1.6 Used appropriate sources of information 1.7 Asked appropriate questions 1.8 Provided accurate information
2. Underpinning knowledge and attitudes	2.1 Organization requirements for written and electronic communication methods 2.2 Effective verbal communication methods
3. Underpinning skills	3.1 Organize information 3.2 Understand and convey intended meaning 3.3 Participate in variety of workplace discussions 3.4 Comply with organization requirements for the use of written and electronic communication methods
4. Resource implications	The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Variety of Information and instruction to the task 4.3 Communication tools
5. Method of assessment	Competency in this Unit should be assessed through:

	<p>5.1 Direct Observation</p> <p>5.2 Interview</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency may be assessed on the job or simulated environment.</p> <p>6.2 Assessment shall be observed while task are being undertaken whether individually or in group</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 2 LEAD SMALL TEAMS

Unit Code	723.7231.031.002.01
Unit Descriptor	This unit covers the skills, knowledge and attitudes required to lead in the dissemination and discussion of ideas, information and issues in the workplace.

UNIT 2 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Provide team leadership	1.1 Work requirements are identified and presented to team members 1.2 Reasons for instructions and requirements are communicated to team members 1.3 Team members' queries and concerns are recognized, discussed and dealt with
2. Assign responsibilities	2.1 Duties, and responsibilities are allocated having regard to the skills, knowledge and aptitude required to properly undertake the assigned task and according to company policy 2.2 Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs and according to assignment requirements 3.2 Performance expectations are based on individual team members duties and area of responsibility 3.3 Performance expectations are discussed and disseminated to individual team members
4. Supervised team performance	4.1 Monitoring of performance takes place against defined performance criteria and/or assignment instructions and corrective action taken if required 4.2 Team members are provided with feedback , positive support and advice on strategies to overcome any deficiencies 4.3 Performance issues which cannot be rectified or addressed within the team are referenced to appropriate personnel according to employer policy 4.4 Team members are kept informed of any changes in

	<p>the priority allocated to assignments or tasks which might impact on client/customer needs and satisfaction</p> <p>4.5 Team operations are monitored to ensure that employer/client needs and requirements are met</p> <p>4.6 Follow-up communication is provided on all issues affecting the team</p> <p>4.7 All relevant documentation is completed in accordance with company procedures</p>
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

UNIT 2 Range of Variables

VARIABLES	RANGE
1. Work requirements	<p>1.1 Client Profile</p> <p>1.2 Assignment instructions</p>
2. Team member's concerns	2.1 Roster/shift details
3. Monitor performance	<p>3.1 Formal process</p> <p>3.2 Informal process</p>
4. Feedback	<p>4.1 Formal process</p> <p>4.2 Informal process</p>
5. Performance issues	<p>5.1 Work output</p> <p>5.2 Work quality</p> <p>5.3 Team participation</p> <p>5.4 Compliance with workplace protocols</p> <p>5.5 Safety</p> <p>5.6 Customer service</p>

UNIT 2 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Maintained or improved individuals and/or team performance given a variety of possible scenario</p> <p>1.2 Assessed and monitored team and individual performance against set criteria</p> <p>1.3 Represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf</p> <p>1.4 Allocated duties and responsibilities, having regard to</p>
-----------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>individual's knowledge, skills and aptitude and the needs of the tasks to be performed</p> <p>1.5 Set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members</p>
2. Underpinning knowledge and attitudes	<p>2.1 Company policies and procedures</p> <p>2.2 Relevant legal requirements</p> <p>2.3 How performance expectations are set</p> <p>2.4 Methods of Monitoring Performance</p> <p>2.5 Client expectations</p> <p>2.6 Team member's duties and responsibilities</p>
3. Underpinning skills	<p>3.1 Communication skills required for leading teams</p> <p>3.2 Informal performance counseling skills</p> <p>3.3 Team building skills</p> <p>3.4 Negotiating skills</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Relevant workplace location or simulated work area</p> <p>4.2 Materials relevant to the proposed activity or task</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct observations of work activities of the individual member in relation to the work activities of the group</p> <p>5.2 Observation of simulation and/or role play involving the participation of individual member to the attainment of organizational goal</p> <p>5.3 Case studies and scenarios as a basis for discussion of issues and strategies in teamwork</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency may be assessed on the job or simulated environment.</p> <p>6.2 Assessment shall be observed while task are being undertaken whether individually or in group</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 3 PRACTICE NEGOTIATION SKILLS

Unit Code	723.7231.031.003.01
Unit Descriptor	This Unit covers the skills, knowledge & attitudes required to collect information in order to negotiate to a desired outcome and participate in the negotiation.

UNIT 3 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Plan negotiations	1.1 Information on <i>preparing for negotiation</i> is identified and included in the plan 1.2 Information on creating <i>nonverbal environments</i> for positive negotiating is identified and included in the plan 1.3 Information on <i>active listening</i> is identified and included in the plan 1.4 Information on different <i>questioning techniques</i> is identified and included in the plan 1.5 Information is checked to ensure it is correct and up-to-date
2. Participate in negotiation	2.1 Criteria for successful outcomes are agreed upon by all parties 2.2 Desired outcome of all parties are considered 2.3 Appropriate language is used throughout the negotiation 2.4 A variety of questioning techniques are used 2.5 The issues and processes are documented and agreed upon by all parties 2.6 Possible solutions are discussed and their viability assessed 2.7 Areas for agreement are confirmed and recorded 2.8 Follow-up action is agreed upon by all parties

UNIT 3 Range of Variables

VARIABLES	RANGE
1. Preparing for negotiation	1.1 Background information on other parties to the negotiation

	<ul style="list-style-type: none"> 1.2 Good understanding of topic to be negotiated 1.3 Clear understanding of desired outcome/s 1.4 Personal attributes <ul style="list-style-type: none"> 1.4.1 Self-awareness 1.4.2 Self esteem 1.4.3 Objectivity 1.4.4 Empathy 1.4.5 respect for others 1.4.6 Interpersonal skills 1.4.7 listening/reflecting 1.4.8 Nonverbal communication 1.4.9 Assertiveness 1.4.10 behavior labeling 1.4.11 testing understanding 1.4.12 seeking information 1.4.13 self-disclosing 1.5 Analytic skills <ul style="list-style-type: none"> 1.5.1 Observing differences between content and process 1.5.2 Identifying bargaining information 1.5.3 Applying strategies to manage process 1.5.4 Applying steps in negotiating process 1.5.5 Strategies to manage conflict 1.5.6 Steps in negotiating process 1.5.7 Options within organization and externally for resolving conflict
<p>2. Non-verbal environments</p>	<ul style="list-style-type: none"> 2.1 Friendly reception 2.2 Warm and welcoming room 2.3 Refreshments offered 2.4 Lead in conversation before negotiation begins
<p>3. Active listening</p>	<ul style="list-style-type: none"> 3.1 Attentive 3.2 Don't interrupt 3.3 Good posture 3.4 Maintain eye contact 3.5 Reflective listening
<p>4. Questioning techniques</p>	<ul style="list-style-type: none"> 4.1 Direct 4.2 Indirect

	4.3 Open-ended
--	----------------

UNIT 3 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Demonstrated sufficient knowledge of the factors influencing negotiation to achieve agreed outcome</p> <p>1.2 Participated in negotiation with at least one person to achieve an agreed outcome</p>
2. Underpinning knowledge and attitudes	<p>2.1 Codes of practice and guidelines for the organization</p> <p>2.2 Organizations policy and procedures for negotiations</p> <p>2.3 Decision making and conflict resolution strategies procedures</p> <p>2.4 Problem solving strategies on how to deal with unexpected questions and attitudes during negotiation</p> <p>2.5 Flexibility</p> <p>2.6 Empathy</p>
3. Underpinning skills	<p>3.1 Interpersonal skills to develop rapport with other parties</p> <p>3.2 Communication skills (verbal and listening)</p> <p>3.3 Observation skills</p> <p>3.4 Negotiation skills</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Room with facilities necessary for the negotiation process</p> <p>4.2 Human resources (negotiators)</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Observation/demonstration and questioning</p> <p>5.2 Portfolio assessment</p> <p>5.3 Oral and written questioning</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency should be assessed on the job or simulated environment.</p> <p>6.2 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 4 SOLVE PROBLEMS RELATED TO WORK ACTIVITIES

Unit Code	723.7231.031.004.01
Unit Descriptor	This unit covers the skills, knowledge and attitudes required to solve problems in the workplace including the application of problem solving techniques and to determine and resolve the root cause of problems

UNIT 4 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Identify the problem	1.1 Variances are identified from normal operating parameters; and product quality 1.2 Extent, cause and nature are of the problem are defined through observation, investigation and analytical techniques 1.3 Problems are clearly stated and specified
2. Determine causes of the problem	2.1 Possible causes are identified based on experience and the use of problem solving tools / analytical techniques. 2.2 Possible cause statements are developed based on findings 2.3 Fundamental causes are identified per results of investigation conducted
3. Determine corrective action	3.1 All possible options are considered for resolution of the problem 3.2 Strengths and weaknesses of possible options are considered 3.3 Corrective actions are determined to resolve the problem and possible future causes 3.4 Action plans are developed identifying measurable objectives, resource needs and timelines in accordance with safety and operating procedures
4. Provide recommendation / s to manager	4.1 Report on recommendations are prepared 4.2 Recommendations are presented to appropriate personnel 4.3 Recommendations are followed-up, if required

UNIT 4 Range of Variables

VARIABLES	RANGE
1. Analytical techniques	1.1 Brainstorming 1.2 Intuitions/Logic 1.3 Cause and effect diagrams 1.4 Pareto analysis 1.5 SWOT analysis 1.6 Gant chart, Pert CPM and graphs 1.7 Scatter grams
2. Problem	2.1 Non – routine process and quality problems 2.2 Equipment selection, availability and failure 2.3 Teamwork and work allocation problem 2.4 Safety and emergency situations and incidents
3. Action plans	3.1 Priority requirements 3.2 Measurable objectives 3.3 Resource requirements 3.4 Timelines 3.5 Co-ordination and feedback requirements 3.6 Safety requirements 3.7 Risk assessment 3.8 Environmental requirements

UNIT 4 Evidence Guide

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified the problem 1.2 Determined the fundamental causes of the problem 1.3 Determined the correct / preventive action 1.4 Provided recommendation to manager These aspects may be best assessed using a range of scenarios / case studies / 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. Underpinning knowledge and attitudes	2.1 Competence includes a thorough knowledge and understanding of the process, normal operating parameters, and product quality to recognize non-

	<p>standard situations</p> <p>2.2 Competence to include the ability to apply and explain, sufficient for the identification of fundamental cause, determining the corrective action and provision of recommendations</p> <p>2.3 Relevant equipment and operational processes</p> <p>2.4 Enterprise goals, targets and measures</p> <p>2.5 Enterprise quality, OHS and environmental requirement</p> <p>2.6 Principles of decision making strategies and techniques</p> <p>2.7 Enterprise information systems and data collation</p> <p>2.8 Industry codes and standards</p>
3. Underpinning skills	<p>3.1 Using range of formal problem solving techniques</p> <p>3.2 Identifying and clarifying the nature of the problem</p> <p>3.3 Devising the best solution</p> <p>3.4 Evaluating the solution</p> <p>3.5 Implementation of a developed plan to rectify the problem</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations.</p> <p>4.2 A bank of scenarios / case studies / what ifs will be required</p> <p>4.3 A bank of questions which will be used to probe the reason behind the observable action</p> <p>4.4 Relevant workplace location or simulated work area</p> <p>4.5 Materials relevant to the proposed activity or task</p>
5. Method of assessment	<p>5.1 The unit should be assessed in a holistic manner as is practical and may be integrated with the assessment of other relevant units of competency.</p> <p>5.2 Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation.</p> <p>5.3 Simulation should be based on the actual workplace and will include walk through of the relevant competency components.</p> <p>5.4 Case studies on solving problems in the workplace</p>

	<p>5.5 Observation</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency should be assessed at the workplace or simulated environment.</p> <p>6.2 Assessment shall be observed with relevant teamwork or operation units</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 5 USE MATHEMATICAL CONCEPTS & TECHNIQUES

Unit Code	723.7231.021.005.01
Unit Descriptor	This Unit covers the skills, knowledge & attitudes required in the application of mathematical concepts and theories.

UNIT 5 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Identify mathematical tools and techniques to solve problem	1.1 Problem areas are identified based on given condition 1.2 Mathematical techniques are selected based on the given problem
2. Apply mathematical procedure/solution	2.1 Mathematical techniques are applied based on the problem identified 2.2 Mathematical computations are performed to the level of accuracy required for the problem 2.3 Results of mathematical computation is determined and verified based on job requirements
3. Analyze results	3.1 Result of application is reviewed based on expected and required specifications and outcome 3.2 Appropriate action is applied in case of error

UNIT 5 Range of Variables

VARIABLES	RANGE
1. Mathematical techniques	Should be included, but are not limited to: 1.1 Four fundamental operations 1.2 Measurements 1.3 Use/Conversion of units of measurements 1.4 Use of standard formulas
2. Appropriate action	2.1 Review in the use of mathematical techniques (e.g. recalculation, re-modeling) 2.2 Report error to immediate superior for proper action

UNIT 5 Evidence Guide

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Identified, applied and reviewed the use of
-----------------------------------	-----------------------------------------------------------------------------------------------------

	mathematical concepts and techniques to workplace problems
2. Underpinning knowledge and attitudes	2.1 Fundamental operation (addition, subtraction, division, multiplication) 2.2 Measurement system 2.3 Precision and accuracy 2.4 Basic measuring tools/devices
3. Underpinning skills	3.1 Applying mathematical computations 3.2 Using calculator 3.3 Using different measuring tools
4. Resource implications	The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Calculator 4.3 Basic measuring tools 4.4 Case Problems
5. Method of assessment	Competency in this Unit should be assessed through: 5.1 Interview/ oral questioning 5.2 Demonstration on simulated situation 5.3 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i>
6. Context for assessment	6.1 Competency should be assessed in the workplace or simulated environment. 6.2 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines

UNIT 6 USE RELEVANT TECHNOLOGIES

Unit Code	723.7231.021.006.01
Unit Descriptor	This Unit covers the skills, knowledge & attitudes required in selecting, sourcing and applying appropriate and affordable technologies in the workplace.

UNIT 6 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Study/select appropriate technology	1.1 Usage of different technologies is determined based on job requirements 1.2 Appropriate technology is selected as per work specification
2. Apply relevant technology	2.1 Relevant technology is effectively used in carrying out function 2.2 Applicable software and hardware are used as per task requirement 2.3 Management concepts are observed and practiced as per established industry practices
3. Maintain/enhance relevant technology	3.1 Maintenance of technology is applied in accordance with the industry standard operating procedure, manufacturer's operating guidelines and occupational health and safety procedure to ensure its operative ability 3.2 Updating of technology is maintained through continuing education or training in accordance with job requirement 3.3 Technology failure/ defect is immediately reported to the concern/responsible person or section for appropriate action

UNIT 6 Range of Variables

VARIABLES	RANGE
1. Technology	Should be included, but not limited to: 1.1 Office technology 1.2 Industrial technology 1.3 System technology

	<p>1.4 Information technology</p> <p>1.5 Training technology</p>
2. Management concepts	<p>Should be included, but not limited to:</p> <p>2.1 Real Time Management</p> <p>2.2 Total Quality Management</p> <p>2.3 Other management/productivity tools</p>
3. Industry standard operating procedure	<p>3.1 Written guidelines relative to the usage of office technology/equipment</p> <p>3.2 Verbal advise/instruction from the co-worker</p>
4. Manufacturer's operating guidelines/instructions	<p>Manuals and Information may include:</p> <p>4.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications</p> <p>4.2 Safe work procedures related to task</p> <p>4.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>4.4 Repair-, specification data-, periodic service maintenance manual/handbook issued by company/manufacturer/component supplier</p> <p>4.5 Written instruction/manuals of specific technology/equipment</p> <p>4.6 General instruction manual</p> <p>4.7 Verbal advise from manufacturer relative to the operation of equipment</p>
5. Occupational health and safety procedure	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>5.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>5.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>
6. Appropriate action	<p>6.1 Implementing preventive maintenance schedule</p> <p>6.2 Coordinating with manufacturer's technician</p>

UNIT 6 Evidence Guide

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Studied and selected appropriate technology consistent with work requirements</p> <p>1.2 Applied relevant technology</p> <p>1.3 Maintained and enhanced operative ability of relevant technology</p>
<p>2. Underpinning knowledge and attitudes</p>	<p>2.1 Awareness on technology and its function</p> <p>2.2 Repair and maintenance procedure</p> <p>2.3 Operating instructions</p> <p>2.4 Applicable software</p> <p>2.5 Communication techniques</p> <p>2.6 Health and safety procedure</p> <p>2.7 Company policy in relation to relevant technology</p> <p>2.8 Different management concepts</p> <p>2.9 Technology adaptability</p>
<p>3. Underpinning skills</p>	<p>3.1 Relevant technology application/implementation</p> <p>3.2 Basic communication skills</p> <p>3.3 Software applications skills</p> <p>3.4 Basic troubleshooting skills</p>
<p>4. Resource implications</p>	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Relevant technology</p> <p>4.3 Interview and demonstration questionnaires</p> <p>4.4 Assessment packages</p>
<p>5. Method of assessment</p>	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Interview/ oral questioning</p> <p>5.2 Demonstration actual or simulated situation</p> <p>5.3 Authenticated portfolio (related certificates of training/seminar)</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency should be assessed in the workplace or simulated environment.</p> <p>6.2 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 7 APPLY GENDER AND SOCIAL EQUITY PRINCIPLES AND POLICIES

Unit Code	723.7231.021.007.01
Unit Descriptor	This unit covers the knowledge, skills and attitudes to apply principles and policies on gender and social equity contributing to positive and productive work environment. This deals with complying with gender and social equity guidelines in the workplace; promoting gender and social equity in the workplace; and recognizing and preventing gender abuse and other forms of social inequities.

UNIT 7 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Follow guidelines or rules of conduct related to gender and social equity in the workplace	1.1 Workplace practices and work instructions relating to interacting with different social groups based on gender, ethnicity and disability are recognized and followed, and clarification is sought where necessary. 1.2 Relevant legislation, codes and national standards that impact on gender and social equity are recognized and followed. 1.3 Introduction of and amendments to guidelines in the work conduct related to gender and social fairness practices are responded to positively and promptly in accordance with organizational requirements.
2. Contribute to improve workplace guidelines in promoting gender and social equity	2.1 Suggestions are made to designated personnel on how to improve social interaction and communication in the workplace to better promote gender and social equity 2.2 Information is gathered and improvements are suggested to help improve workplace guidelines and policies in promoting observing gender and social fairness . 2.3 Gender and social equity issues in the workplace practices are discussed in the workplace with colleagues and designated personnel. 2.4 Contributions to the review of workplace guidelines and policies gender and social equity guidelines and policies are made within limits of responsibility
3. Recognize and report suspected cases of	3.1 Signs and manifestations of gender and social inequities and its impact in the workplace are

gender and other forms of social inequity	<p>recognized.</p> <p>3.2 Information about or observations of a suspected problem related to gender and social inequity are reported to supervisors and appropriate authorities.</p> <p>3.3 Location and extent of suspected gender and social inequities is accurately recorded.</p> <p>3.4 Reports on the effect of gender and social inequities are completed according to organizational guidelines.</p>
-------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

UNIT 7 Range of Variables

VARIABLES	RANGE
1. Workplace practices and work instructions	<p>1.1 Social diversity awareness, recognition and analysis in the workplace</p> <p>1.2 Use of gender fair and socially inclusive language in dealing with co-workers and students</p> <p>1.3 Sexual harassment and bullying incident recording and reporting procedures</p> <p>1.4 Verbal instructions from persons with responsibility related to gender and social equity awareness and sensitivity</p>
2. Legislation, codes and national standards	<p>2.1 Code of Conduct on sexual harassment in TVET institutions under MoES</p> <p>2.2 National Strategy for the Advancement of Women, 2005-2010 (includes goals and programmes to promote Lao women's education, skill levels, income generating opportunities, among others)</p> <p>2.3 Lao PDR Law on Development and Protection of Women (Among others, aims to promote women's knowledge and competency, revolutionary morals and virtues, gender equality; seeks to eliminate all forms of discrimination against women; creates enabling conditions for women's participation; and for women to be equal force in national protection and development)</p> <p>2.4 Labor Law of Lao PDR, 1994 (Articles 2, 39 & 35)</p> <p>2.5 Constitution of Lao PDR, 2003 (Articles 22, 24 & 27, statement on women of all ethnic groups should receive equal treatment in terms of legal rights, economic and social opportunities)</p> <p>2.6 National obligations to international human rights conventions (Convention on the Elimination of all Forms of Discrimination against Women (CEDAW), 1981; Convention on the Rights of the Child (CRC),</p>

	1990
3. Suggestions	3.1 Be sensitive in terms of gender, ethnicity and disability in verbal and non-verbal communication 3.2 Stop the repetition of sexist and discriminatory sex jokes 3.3 Create and share jokes that are not told at the expense of different social groups 3.4 Recognize the rights of different social groups i.e. women, different ethnic groups, the disabled to equal access to training and skills development, respectful treatment, etc.
4. Designated personnel	4.1 School Administrator 4.2 Head teacher 4.3 Teacher and school staff designated as gender and social equity focal point
5. Workplace guidelines and policies in observing gender and social fairness	5.1 Guiding workplace conduct against committing and reporting sexual harassment 5.2 Using language that is sensitive in terms of gender, ethnicity and disability 5.3 Information on personnel policies that are aligned with national and official policies and guidelines that uphold the rights of women, ethnic groups and the disabled 5.4 Provision of separate and secure accommodations, toilets wash and resting areas for women, ethnic groups and disabled people 5.5 The designation of a gender focal point among teachers, non-teaching staff and among student population
6. Gender and social equity issues	6.1 Sexual harassment 6.2 Bullying 6.3 Voyeurism 6.4 Different forms of gender-based violence 6.5 Inappropriate and discriminatory language 6.6 Sex jokes that are discriminatory against women, ethnic groups, disabled people 6.7 Discrimination in the workplace
7. Signs or manifestations	7.1 Sub-standard performance, social withdrawal of affected group or individual 7.2 Lack of motivation to advance or excel

	<p>7.3 Absenteeism, intention to resign without reason</p> <p>7.4 Display of fear, nervous and seemingly irrational behavior of affected group in the presence of perpetrator</p>
8. Reported	<p>8.1 Verbally (face-to-face or through communication equipment)</p> <p>8.2 In writing (memo, notes, faxes, email or electronic messages)</p> <p>8.3 Witness or third party accounts</p>
9. Recorded	<p>9.1 Incident report</p> <p>9.2 Public petitions</p> <p>9.3 CCTV in the workplace</p>
10. Designated personnel	<p>10.1 School Administrator</p> <p>10.2 Head teacher</p> <p>10.3 Teacher and school staff designated as gender and social equity focal point</p>

UNIT 7 Evidence Guide

1. Critical aspects of Competency	<p>1.1 Demonstrated knowledge of workplace practices and work instructions</p> <p>1.2 Described relevant legislations, codes and national standards related to gender and social equity issues in the workplace</p> <p>1.3 Followed workplace practices, policies and guidelines related to gender and social equity</p> <p>1.4 Contributed to improve workplace guidelines in promoting gender and social equity</p> <p>1.5 Recognized and reported on suspected cases of gender and other forms of social inequity</p> <p>1.6 Reported, recorded or became aware of the need to report and document lack of compliance with guidelines and policies on gender and social fairness in the workplace</p>
2. Underpinning knowledge and attitudes	<p>2.1 Relevant legislation from all levels of government on gender and other social equity issues involving ethnic groups and disability</p> <p>2.2 Relevant gender and social equity official legislation, policies and workplace practices and procedures</p> <p>2.3 Good practice approaches relevant to work area particularly in regard to observance of and compliance</p>

	<p>with guidelines and policies that uphold and promote gender and social equity.</p> <p>2.4 Gender and other social equity issues, especially in regard to sexual harassment and gender and other discrimination in the workplace</p> <p>2.5 Gender issues in TVET areas traditionally not associated with women</p> <p>2.6 General work place practices and their potential impact on the gender and other dimensions of social equity</p>
3. Underpinning skills	<p>3.1 Discuss and explain gender and other social equity issues in TVET</p> <p>3.2 Communicate with co-workers and students in an inclusive manner that respects the rights of the different groups that constitute the workplace and the classroom</p> <p>3.3 Recognize signs and manifestations of sexual harassment and other forms of gender-based violence in the workplace and in the classroom</p> <p>3.4 Follow workplace directions and instructions</p> <p>3.5 Ability to report and document cases of sexual harassment and other forms of gender-based violence and violence directed at other disadvantaged groups</p>
4. Resource implications	<p>4.1 Basic sensitization workshop on gender and other social equity issues</p> <p>4.2 Legislation, policies, procedures, protocols and local ordinances relating to gender and social equity</p> <p>4.3 Case studies and scenarios relating to the reporting and handling of cases of sexual harassment and other forms of gender-based violence</p>
5. Method of assessment	<p>5.1 Competency may be assessing through:</p> <p>5.2 Written or oral Examination</p> <p>5.3 Certificate of attendance in basic sensitization workshop on gender and other social equity issues</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency should be assessed on workplace or simulated environment.</p> <p>6.2 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

F COMMON UNITS OF COMPETENCY

UNIT 8 OBSERV PROCEDURES, SPECIFICATIOIS & MANUALS OF INSTRUCTION

Unit Code	723.7231.122.001.01
Unit Descriptor	This unit covers the skills, knowledge and attitudes required in identifying, interpreting, applying services to specifications and manuals and storing manuals.

UNIT 8 Elements & Performance Criteria

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

UNIT 8 Range of Variables

VARIABLES	RANGE
1. Manuals and Information	1.1 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules 1.2 Repair manual/handbook issued by company/manufacturer/component supplier 1.3 Specification data/manual/handbook issued by company/manufacturer/component supplier

	<p>1.4 Periodic Service Maintenance Data manual/handbook issued by company/manufacturer/component supplier</p> <p>1.5 Tools, workshop-, test equipment and OHS user manual and service guide issued by company/manufacturer/component supplier</p>
2. Applications	<p>Manuals used for System/components may be fitted to:</p> <p>2.1 Light vehicles</p> <p>2.2 Agro-Machinery</p> <p>2.3 Outdoor power equipment</p> <p>2.4 Marine craft</p> <p>2.5 Plant</p>
3. Company/ workshop standard operating procedures	<p>Manuals and Information used for Company/workshop standard operating procedures include:</p> <p>3.1 Written instructions issued by authorized personal</p> <p>3.2 Job order slip</p> <p>3.3 Spare parts ordering form</p>

UNIT 8 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Listed materials and tools according to quantity and job requirements</p> <p>1.2 Requested materials and tools according to the list prepared and as per company standard operating procedures</p> <p>1.3 Inspected issued materials and tools as per quantity and job specifications</p> <p>1.4 Tools provided with appropriate safety devices</p>
2. Underpinning knowledge and attitudes	<p>2.1 Types and uses of construction materials and tools</p> <p>2.2 Different forms</p> <p>2.3 Requisition procedures</p>
3. Underpinning skills	<p>3.1 Preparing materials and tools</p> <p>3.2 Proper handling of tools and equipment</p> <p>3.3 Following instructions</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location</p> <p>4.2 Materials relevant to the unit of competency</p>

	4.3	Technical data/manual/handbook and specifications relevant to the activities
5. Method of assessment	5.1	Competency in this Unit may be assessed through: Direct observation and oral questioning <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i>
6. Context for assessment	6.1 6.2	Competency may be assessed on the job or simulated environment. Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines

UNIT 9 INTERPRET TECHNICAL DRAWING & PLANS

Unit Code	723.7231.122.002.01
Unit Descriptor	This unit covers the skills, knowledge and attitudes required in analyzing and interpreting symbols, data and work plan based on the required performance standards.

UNIT 9 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Analyze signs, symbols and data	1.1 Technical plans are obtained according to job requirements 1.2 Signs, symbols and data are identified according to job specifications 1.3 Signs symbols and data are determined according to classification or as appropriate in drawing
2. Interpret technical drawings and plans	2.1 Necessary tools, materials and equipment are identified according to the 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 2.6 Work plan is drawn following the specifications
3. Apply freehand sketching	3.1 Where applicable, correct freehand sketching is produced in accordance with the job requirements

UNIT 9 Range of Variables

VARIABLES	RANGE
1. Technical Drawing/ Plans	Technical Drawing/Plans including but not limited to: 1.1 Welding plans 1.2 Welding Procedures Specifications (WPS) 1.3 Auto mechanic plans 1.4 Agro-Machinery plans

	<ul style="list-style-type: none"> 1.5 Motorbike plans 1.6 Electrical wiring plans 1.7 OHS work plans 1.8 Plans, schematic diagrams in Company/manufacturer/component supplier repair, specification data and Periodic Service Maintenance Data manual/handbook
2. Applications	<p>Including but not limited to:</p> <ul style="list-style-type: none"> 2.1 Argo Machinery Mechanic and Repair 2.2 Auto Mechanic and Repair 2.3 Motorbike Mechanic and Repair 2.4 Welding
3. Drawing	<ul style="list-style-type: none"> 3.1 Drawing symbols 3.2 Alphabet of lines 3.3 Orthographic views <ul style="list-style-type: none"> 3.3.1 Front view 3.3.2 Right side view/left side view 3.3.3 Top view 3.3.4 Pictorial 3.4 Schematic diagram 3.5 Electrical drawings 3.6 Structural drawings 3.7 Welding drawing 3.8 Welding symbols
4. Tools and materials	<p>Including but not limited to:</p> <ul style="list-style-type: none"> 4.1 Compass 4.2 Divider 4.3 Rulers 4.4 Triangles 4.5 Drawing tables 4.6 Computer

UNIT 9 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Identified and determined signs, symbols and data according to work plan, job requirements and classifications
-----------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>1.2 Identified tools and equipment in accordance with job requirements</p> <p>1.3 Listed supplies and materials according to blueprint specifications</p> <p>1.4 Drawn work plan following specifications</p> <p>1.5 Demonstrated ability to determine job specifications based on working / technical drawing</p>
2. Underpinning knowledge and attitudes	<p>TRADE MATHEMATICS</p> <p>2.1 Linear measurement</p> <p>2.2 Dimension</p> <p>2.3 Unit conversion</p> <p>BLUEPRINT READING AND PLAN SPECIFICATION</p> <p>2.4 Electrical, mechanical plan, symbols and abbreviations</p> <p>2.5 Drawing standard symbols</p> <p>TRADE THEORY</p> <p>2.6 Basic technical drawing</p> <p>2.7 Types technical plans</p> <p>2.8 Various types of drawings</p> <p>2.9 Notes and specifications</p>
3. Underpinning skills	<p>3.1 Interpreting drawing/orthographic drawing</p> <p>3.2 Interpreting technical plans</p> <p>3.3 Matching specification details with existing resources</p> <p>3.4 Following instructions</p> <p>3.5 Handling of drawing instruments</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Drawings and specification relevant to task</p> <p>4.3 Materials and instrument relevant to proposed activity</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation</p> <p>5.2 Questions/Interview</p> <p>5.3 Written test related to underpinning knowledge</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency assessment may occur in the workplace or in any appropriate simulated environment</p> <p>6.2 Assessment shall be observed while task are being</p>

	undertaken whether individually or in group 6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines
--	---------------------------------------------------------------------------------------------------------------------------------------

UNIT 10 **PERFORM MENSURATION AND CALCULATION**

Unit Code	723.7231.122.003.01
Unit Descriptor	This unit covers the skills, knowledge and attitudes required in identifying and measuring objects based on the required performance standards.

UNIT 10 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Select measuring instruments	1.1 Object or component to be measured is identified, classified and interpreted according to the appropriate regular <i>geometric shape</i> and job requirements 1.2 Correct specifications are obtained from relevant sources 1.3 Appropriate measuring tools/ instruments are selected/identified as per object to be measured or job requirements
2. Carry out measurements and calculations	2.1 Accurate <i>measurements</i> are obtained according to job requirements 2.2 <i>Calculation</i> needed to complete work tasks are performed using the four basic process of addition (+), subtraction (-), multiplication (x) and division (/) including but not limited to: trigonometric functions, algebraic computations 2.3 Calculations involving fractions, percentages and mixed numbers are used to complete workplace tasks 2.4 Numerical computation is self-checked and corrected for accuracy 2.5 Instruments are read to the limit of accuracy of the tool 2.6 Systems of measurement identified and converted according to job requirements/ISO 2.7 Object or component are measured according to job requirements

UNIT 10 Range of Variables

VARIABLES	RANGE
1. Geometric shape	Including but is not limited to: 1.1 Round 1.2 Square 1.3 Rectangular 1.4 Triangle 1.5 Sphere 1.6 Conical
2. Measuring instruments	Including but not limited to: 2.1 Micrometer (In-out, depth) 2.2 Vernier caliper (out, inside) 2.3 Dial gauge 2.4 Plastic gauge 2.5 Straight edge 2.6 Thickness gauge 2.7 Torque gauge 2.8 Telescopic gauge 2.9 Try-square 2.10 Protractor 2.11 Combination gauge 2.12 Steel rule 2.13 Voltmeter 2.14 Ammeter 2.15 Ohmmeter 2.16 Gauges (pressure and vacuum) 2.17 Thermometers
3. Measurements and calculations	Kinds of part mensuration include: 3.1 Linear 3.2 Volume 3.3 Area 3.4 Wattage 3.5 Voltage 3.6 Resistance 3.7 Amperage 3.8 Frequency

	3.9 Impedance 3.10 Displacement 3.11 Inside diameter 3.12 Outside diameter 3.13 Circumference 3.14 Length 3.15 Thickness 3.16 Taper 3.17 Out of roundness 3.18 End play/thrust clearance
4. Applications	Mensuration including but not limited to: 4.1 Argo Machinery Mechanic and Repair 4.2 Auto Mechanic and Repair 4.3 Motorbike Mechanic and Repair 4.4 Welding

UNIT 10 Evidence Guide

1. Critical aspects of Competency	Assessment requires that the candidate: 1.1 Selected and prepared appropriate measuring instruments in accordance with job requirements 1.2 Performed measurements and calculations according to job requirements/ ISO
2. Underpinning knowledge and attitudes	TRADE MATHEMATICS / MENSURATION 2.1 Four fundamental operation 2.2 Linear measurement 2.3 Dimensions 2.4 Unit conversion 2.5 Ratio and proportion 2.6 Trigonometric functions 2.7 Algebraic equations
3. Underpinning skills	3.1 Performing calculation by addition, subtraction, multiplication and division; trigonometric functions and algebraic equations 3.2 Visualizing objects and shapes 3.3 Interpreting formulas for volume, areas, perimeters of plane and geometric figures 3.4 Proper handling of measuring instruments

<p>4. Resource implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 4.1 Workplace location or simulated work area 4.2 Problems to solve 4.3 Measuring instrument appropriate to carry out tasks 4.4 Instructional materials relevant to the propose activity 4.5 Assessment of underpinning knowledge and practical skills may be combined
<p>5. Method of assessment</p>	<p>Competency should be assessed through:</p> <ul style="list-style-type: none"> 5.1 Direct Observation on actual workplace 5.2 Written test/questioning to underpinning knowledge <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<ul style="list-style-type: none"> 6.1 Competency may be assessed on the job or simulated environment. 6.2 Assessment shall be observed while task are being undertaken whether individually or in group 6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines

UNIT 11 APPLY OCCUPATIONAL HEALTHS & SAFETY REQUIERMENTS

Unit Code	723.7231.122.004.01
Unit Descriptor	This unit of Competency covers the skills, knowledge and attitudes for Occupational Health & Safety (OHS) within any sector of the automotive industry.

UNIT 11 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Identify & assess risks	1.1 Hazards in the work area are identified, assessed and reported to designated personnel. 1.2 Safety risks in the work area are identified, assessed and reported to designated personnel. 1.3 Safe work practices, duty of care requirements and safe work instructions are followed for controlling risks. 1.4 OHS, hazard, accident or incident reports are contributed to according to workplace procedures and National OHS legislation and relevant information
2. Identify hazardous materials & other hazards	2.1 Hazardous materials on a work site are correctly identified and, if appropriate, handled and used according to company and legislated procedures. 2.2 Measures for controlling risks and construction hazards are applied effectively and immediately. 2.3 Hazardous materials that have safety implications for self and other workers are secured immediately they are identified, using appropriate signs and symbols.
3. Plan & prepare for safe work practices	3.1 Correct personal protective equipment and clothing for each area of automotive work are identified, worn, correctly fitted, used and stored according to enterprise procedures. 3.2 Selection of tools, equipment and materials, and organization of tasks are performed in conjunction with other personnel on site and in accordance with enterprise procedures. 3.3 Required barricades and signage are determined and erected at the appropriate site location. 3.4 Material safety data sheets (MSDS), and job safety analysis (JSA) and safe work method statements

	relevant to the work to be carried out are identified and applied
4. Apply safe work practices	<p>4.1 Tasks are performed in a manner that is safe for operators, other personnel and the general community in accordance with legislative requirements, and enterprise policies and procedures.</p> <p>4.2 Plant and equipment guards are used in accordance with manufacturer specifications, work site regulations & standards.</p> <p>4.3 Procedures and relevant authorities for reporting hazards, incidents and injuries are used.</p> <p>4.4 Work site safety signs and symbols are identified and followed.</p> <p>4.5 Work site area is cleared and maintained to prevent and protect self and others from incidents and accidents and to meet environmental requirements</p>
5. Follow emergency procedures	<p>5.1 Designated personnel are identified in the event of an emergency for communication purposes.</p> <p>5.2 Safe workplace procedures for dealing with accidents, various types of fire and other emergencies are followed, including identification or use, if appropriate, of fire equipment within scope of responsibilities.</p> <p>5.3 Emergency response and evacuation procedures are known, practiced and carried out effectively when required.</p> <p>5.4 Emergency first aid treatment of minor injuries is carried out correctly and details of any treatment administered are reported accurately to designated personnel as soon as possible</p>

UNIT 11 Range of Variables

VARIABLES	RANGE
1. Hazards	<p>Hazards include but are not limited to;-</p> <p>1.1 Chemical spills</p> <p>1.2 Work in confined spaces</p> <p>1.3 Trenches, excavations, workshop pit</p> <p>1.4 Falling objects</p> <p>1.5 Gasses, fires</p> <p>1.6 Hazardous materials</p> <p>1.7 Extreme temperatures</p>

	<ul style="list-style-type: none"> 1.8 Infectious diseases 1.9 Handling & moving equipment 1.10 Overhanging, protruding, sharp objects 1.11 Noise, dust, vapors 1.12 Uncontrolled site traffic 1.13 Working at heights
2. Designated persons	<ul style="list-style-type: none"> 2.1 Safety officers 2.2 Managers, supervisors 2.3 Materials handling licensed persons
3. Safe work practices	<ul style="list-style-type: none"> 3.1 Observing OHS practices 3.2 Risk assessment & emergency procedures 3.3 Use of fire-fighting equipment
4. Duty of care requirements	<ul style="list-style-type: none"> 4.1 Protect others from harm 4.2 National OHS regulations
5. Incidents	<ul style="list-style-type: none"> 5.1 Accidents resulting in personal injury, damage to property 5.2 Events on site that require assessment and action
6. OHS legislation, regulations and codes	<ul style="list-style-type: none"> 6.1 Current National OHS regulations 6.2 Current Provincial OHS regulations 6.3 Current enterprise safety policies and procedures 6.4 Current Company/manufacturer/component supplier OHS manual/handbook/user guide requirements
7. Information, signs & symbols	<ul style="list-style-type: none"> 7.1 Visual displayed symbols, tags, signs, instructions 7.2 Event reporting documents 7.3 Safety meeting records
8. Hazardous materials	<ul style="list-style-type: none"> 8.1 Petrol, diesel, gas fuel 8.2 Exhaust gas 8.3 Welding gas 8.4 Oil 8.5 Color 8.6 Cleaning chemicals, solvents 8.7 Glues 8.8 Asbestos
9. Risk control measures	<ul style="list-style-type: none"> 9.1 Elimination, substitution, isolation 9.2 Management control

	9.3 Personal Protective Equipment
10. Personal Protective Equipment (PPE)	<p>Including but limited to:</p> <p>10.1 Aprons, arm guards, caps, dust masks, respirators, ear muffs, ear plugs, gloves, hard hats, reflective vests, jackets, overalls, safety glasses & goggles, steel capped boots, UV protective clothing & sunscreen</p>
11. Tools, equipment and materials	<p>Including but not limited to:</p> <p>11.1 Fire-fighting equipment</p> <p>11.2 Breathing apparatus</p> <p>11.3 First aid kit</p> <p>11.4 Ladders & work platforms</p> <p>11.5 PPE</p>
12. Emergency procedures	<p>Including but not limited to:</p> <p>12.1 Contact numbers, names and locations</p> <p>12.2 Procedures for local emergency services</p>

UNIT 11 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Locate, interpret & apply relevant information, standards & specifications</p> <p>1.2 Comply with a safety site plan & National & organizational OHS policy/procedures.</p> <p>1.3 Implement required safety actions relevant to a range of situations & in line with OHS policy and procedures</p>
2. Underpinning knowledge and attitudes	<p>2.1 Basic first aid procedures</p> <p>2.2 OHS and Construction Terminology</p> <p>2.3 Knowledge of OHS communication & visual display methods including signage</p> <p>2.4 Emergency response & evacuation procedures</p>
3. Underpinning skills	<p>3.1 Recognize & respond effectively to a range of hazardous situations in the required manner</p> <p>3.2 Deal with hazardous situations as part of a team</p> <p>3.3 Communicate & report hazards & risks using a range of technologies suitable to the work environment</p> <p>3.4 Identify & report faults in tools, equipment and facilities.</p> <p>3.5 Current OHS legislation & required safety clothing</p>

	<p>&equipment</p> <p>3.6 Safe use of construction tools, materials & equipment</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Induction procedures</p> <p>4.2 Realistic or simulated tasks covering mandatory OHS requirements</p> <p>4.3 Relevant specifications & work instructions</p> <p>4.4 Tools & equipment appropriate to applying safe work practices</p> <p>4.5 Support materials appropriate to activity</p> <p>4.6 Workplace instructions relating to safe work practices</p> <p>4.7 Material safety data sheets</p> <p>4.8 Research resources</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Satisfy endorsed Assessment guidelines</p> <p>5.2 Include direct task observation in real or simulated conditions</p> <p>5.3 Questioning to clarify competency observations</p> <p>5.4 Provide evidence that is Sufficient & Valid</p> <p>5.5 Take account of cultural, and disability variations</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency should be assessed in the workplace or simulated environment.</p> <p>6.2 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 12 MOVE VEHICLE

Unit Code	723.7231.022.005.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to move vehicles in a workshop.

UNIT 12 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare vehicle for moving	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare task in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Correct check-up procedures performed based on vehicle manufacturer standard requirements and company/workshop standard operating procedures
2. Move vehicle	2.1 Select and move vehicle to appropriate location in accordance with OHS requirements 2.2 Park vehicle following parking safety techniques and procedure 2.3 Perform final check to work requirements and external vehicle damages
3. Restore work area and complete documentation	3.1 Restore and clean work area, tools and equipment. 3.2 Complete and restore Documentation includes job cards, checklist, reports and workshop manuals.

UNIT 12 Range of Variables

VARIABLES	RANGE
1. Vehicles	1.1 Vehicles with manual transmission 1.2 Vehicles with automatic transmission 1.3 Agro-Machinery 1.4 Motorbikes
2. Moving	Vehicle moving maybe includes: 2.1 Driving 2.2 Towing 2.3 Pushing

	2.4 Lifting
3. Checkup procedure	<p>Checkup procedures maybe includes:</p> <p>3.1 Oil level</p> <p>3.2 Brake fluid</p> <p>3.3 Clutch fluid</p> <p>3.4 Coolant level</p> <p>3.5 Battery (electrolyte)</p> <p>3.6 Tire pressure</p> <p>3.7 Position of driving gear</p> <p>3.8 Lighting and warning devices</p>
4. Parking safety techniques	<p>Parking safety techniques maybe includes:</p> <p>4.1 Vehicle parking position</p> <p>4.2 Vehicle lifting to manufacture requirements</p> <p>4.3 Engaging of Park brake</p> <p>4.4 Engaging of driving gear position</p> <p>4.5 Front wheel position</p>

UNIT 12 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out vehicle moving.</p> <p>1.2 Conducting vehicle moving in accordance with workplace and company/mannufacturer/component supplier requirements</p> <p>1.3 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Vehicle driving</p> <p>2.3 Relevant company/workshop operating procedure</p> <p>2.4 Relevant manual/handbook with vehicle moving specifications</p> <p>2.5 Vehicle moving, positioning and lifting procedure</p> <p>2.6 Hand/ power tools and workshop equipment for task</p> <p>2.7 Dangers of working with lift equipment</p> <p>2.8 Final inspection procedure</p> <p>2.9 Workshop and Equipment maintenance</p> <p>2.10 Company/workshop Documentation requirements</p>

<p>3. Underpinning skills</p>	<p>3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting manual/handbook for moving specification 3.6 Ability to move/maneuvering vehicle 3.7 Proper handling and use of tools and equipment 3.8 Maintaining orderliness and cleanliness 3.9 Maintaining customer records</p>
<p>4. Resource implications</p>	<p>The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Appropriate vehicle for moving 4.3 Appropriate tools and equipment to this task 4.4 Materials relevant to the task 4.5 Specifications and work instruction to the task</p>
<p>5. Method of assessment</p>	<p>Competency should be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions to underpinning knowledge 5.3 Demonstration on simulated situation 5.4 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency may be assessed on the job or simulated environment. 6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience. 6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 13 MOUNT AND DEMOUNT SYSTEM COMPONENTS

Unit Code	723.7231.122.006.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to mount and/or demount system components.

UNIT 13 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to mount/demount system components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required to mount/demount system components are sourced. Work area, hand tools, equipment, maintenance specification data/manual/handbook and spare parts are identified and prepared
2. Perform mount/demount system components	2.1 Mount/demount system/components and test for correct operation in accordance with company/manufacturer/component supplier specifications. 2.2 Removed/components are inspected in accordance with authorized procedures and inspection reports raised and processed. 2.3 Inspection of mounting points and fittings for damage and wear is completed without causing damage to any component or system 2.4 Tightening sequence, torque settings and spoke retensioning are completed in accordance with manufacturer/component supplier specifications and site procedures 2.5 Perform final inspection to ensure protective guards, safety features and cowlings are in place.
3. Restore work area and complete documentation	3.1 Restore and clean work area, tools and equipment. 3.2 Complete and restore Documentation includes job cards, checklist, reports and workshop manuals.

UNIT 13 Range of Variables

VARIABLES	RANGE
1. Applications	System/components may be fitted to: <ul style="list-style-type: none"> 1.1 Vehicles 1.2 Agro-Machinery 1.3 Outdoor power equipment 1.4 Marine craft 1.5 Plant
2. Faults	Faults on mounting points and fittings may include: <ul style="list-style-type: none"> 2.1 Damage 2.2 Wear 2.3 Scratches 2.4 Leak
3. Inspection procedure	Inspection procedure should be including: <ul style="list-style-type: none"> 3.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 3.2 Adjustment of System components 3.3 Functional Test
4. Manuals and Information	Manuals and Information may include: <ul style="list-style-type: none"> 4.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications 4.2 Safe work procedures related to task 4.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules 4.4 Company/manufacturer/component supplier service manual/handbook 4.5 Company/manufacturer/component supplier specification data/manual/handbook 4.6 Company/manufacturer/component supplier periodic service maintenance data manual/handbook
5. Tools and Equipment	Tools and Equipment may include: <ul style="list-style-type: none"> 5.1 Hand tools 5.2 Power tools 5.3 Special tools for working task 5.4 Torque wrench

<p>6. Company/ workshop standard operating procedures</p>	<p>Company/workshop standard operating procedures include:</p> <p>6.1 Verbal or written instructions issued by authorized personal</p> <p>6.2 Job order slip</p> <p>6.3 Spare parts ordering form</p> <p>6.4 Wearing of Personal Protective Equipment</p>
<p>7. Occupational Health and Safety (OHS) requirements</p>	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>7.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>7.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 13 Evidence Guide

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to mount/demount system/ components.</p> <p>1.2 Perform mount/demount system/components in accordance with workplace and company/ manufacturer/component supplier requirements</p> <p>1.3 Performing completed job documentation and work area restore</p>
<p>2. Underpinning knowledge and attitudes</p>	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant manual/handbook with mount/demount specifications</p> <p>2.4 System/components mount/demount procedure</p> <p>2.5 Appropriate sealant/adhesive</p> <p>2.6 Hand/ power tools and workshop equipment for task</p> <p>2.7 Final inspection procedure</p> <p>2.8 Workshop and Equipment maintenance</p> <p>2.9 Company/workshop Documentation requirements</p>

<p>3. Underpinning skills</p>	<p>3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting manual/handbook for mount/demount specifications 3.6 Proper handling and use of tools and equipment 3.7 Mounting and demounting system/components 3.8 Using of appropriate sealant/adhesive 3.9 Maintaining orderliness and cleanliness 3.10 Maintaining customer records</p>
<p>4. Resource implications</p>	<p>The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Appropriate vehicle for moving 4.3 Appropriate tools and equipment to this task 4.4 Materials relevant to the task 4.5 Specifications and work instruction to the task</p>
<p>5. Method of assessment</p>	<p>Competency in this Unit should be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions to underpinning knowledge 5.3 Demonstration on simulated situation 5.4 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency may be assessed on the job or simulated environment. 6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience. 6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 14 **PERFORM PERIODICAL MAINTENANCE**

Unit Code	723.7231.132.007.01
Unit Descriptor	This Unit covers the skills, knowledge & attitudes required to carry out scheduled periodic maintenance to vehicle, tools and equipment based on the required performance standards.

UNIT 14 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to carry out scheduled periodic maintenance	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required to carry out scheduled periodic maintenance are sourced. Work area, hand tools, equipment, maintenance specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose a vehicle/ tools/equipment	2.1 Vehicle/ tools/equipment system/components are diagnosed in accordance with company/manufacturer/component supplier maintenance manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Carry out scheduled periodic maintenance	3.1 Carry out scheduled periodic maintenance to vehicle/ tools/equipment system/components and perform test for correct operation accordance with company/manufacturer/component supplier specifications 3.2 Adjustments made during the maintenance are in accordance with manufacturer/component supplier specifications. 3.3 Perform final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 14 Range of Variables

VARIABLES	RANGE
1. Maintenance task/ components	Maintenance may include: 1.1 Lubrication intervals 1.2 Filter replacement 1.3 Components clearance check 1.4 Components cleaning 1.5 Components adjustment 1.6 Wear check Vehicle: 1.7 Engine Components 1.8 Cassie components 1.9 Electrical components Workshop: 1.10 Tools 1.11 Equipment 1.12 Test Equipment
2. Applications	Maintenance components may be fitted to: 2.1 Light vehicles 2.2 Agro-Machinery 2.3 Outdoor power equipment 2.4 Marine craft 2.5 Plant 2.6 Workshop facility
3. Manuals and Information	Manuals and Information may include: 3.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications 3.2 Safe work procedures related to task 3.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules 3.4 Company/manufacturer/component supplier maintenance and specification data/manual/handbook 3.5 Company/manufacturer/component supplier periodic service maintenance data manual/handbook
4. Tools and Equipment	Tools and Equipment may include:

	<p>4.1 Hand tools</p> <p>4.2 Power tools</p> <p>4.3 Measuring instruments (Vernier, micrometer, telescope gauge, dial tester indicator, plastic- gauge, torque wrench, feeler gauge)</p> <p>4.4 Engine lifting device</p> <p>4.5 Two post vehicle lift or long floor jack and support stand set</p> <p>4.6 Lubricant dispensing equipment</p> <p>4.7 Cleaning Tools and Material</p>
5. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>5.1 Verbal or written instructions issued by authorized personal</p> <p>5.2 Job order slip</p> <p>5.3 Spare parts ordering form</p> <p>5.4 Periodic maintenance schedule plan/form</p> <p>5.5 Wearing of Personal Protective Equipment</p>
6. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>6.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>6.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 14 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Diagnosing and used method for system/components test in reference to company/manufacturer/component supplier repair requirements</p> <p>1.3 Conducting the maintenance to system/ components in accordance with workplace and</p>
-----------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>company/manufacturer/component supplier requirements</p> <p>1.4 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant maintenance specification data/manual/handbook</p> <p>2.4 Operation and function to maintained vehicle and workshop system/components</p> <p>2.5 Mechanic/ technician units of measurement</p> <p>2.6 Maintenance diagnosis procedure for vehicle and workshops</p> <p>2.7 Maintenance procedure for vehicle and workshops</p> <p>2.8 Hand/ power tools and workshop Equipment for task</p> <p>2.9 Relevant Test equipment for task</p> <p>2.10 Dangers of working with test equipment</p> <p>2.11 Vehicle moving, positioning and lifting for task</p> <p>2.12 Final inspection procedure</p> <p>2.13 Company/workshop Documentation requirements</p>
3. Underpinning skills	<p>3.1 Working safely</p> <p>3.2 Using Personal Protective Equipment</p> <p>3.3 Communication effectively</p> <p>3.4 Organizing materials to be used</p> <p>3.5 Using and interpreting maintenance specification data/manual/handbook</p> <p>3.6 Proper handling and use of tools and equipment</p> <p>3.7 Mounting and demount system components</p> <p>3.8 Using test equipment for task</p> <p>3.9 Maintaining orderliness and cleanliness</p> <p>3.10 Maintaining customer records</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p>

	<p>5.1 Direct Observation on actual workplace 5.2 Questions to underpinning knowledge 5.3 Demonstration on simulated situation 5.4 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency should be assessed on the job or simulated environment. 6.2 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

G CORE UNITS OF COMPETENCY

UNIT 15 REPAIR BRAKE SYSTEM

Unit Code	723.7231.433.001.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to repair light vehicle mechanical and hydraulic brake system/components to manufacture specifications.

UNIT 15 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair brake/ system components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose a brake system	2.1 Brake system/components are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair brake system/ components	3.1 Repair to brake system/components and test for correct operation are carried out in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications. 3.3 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 15 Range of Variables

VARIABLES	RANGE
1. Brake system	Systems include: 1.1 Mechanical and hydraulic Drum Brakes 1.2 Hydraulic Disc Brakes
2. System components	Components may include: 2.1 Brake booster 2.2 Brake master cylinder 2.3 Brake slave cylinder 2.4 Brake drum 2.5 Hand brake 2.6 Hand brake cable 2.7 Brake shoes/ pads 2.8 Brake pipe/ hose 2.9 Brake disc 2.10 Brake caliper 2.11 Brake light switch 2.12 Brake fluids DOT 3 / DOT 4
3. Applications	System may be fitted to: 3.1 Light Vehicles (including motorbikes) 3.2 Agro-Machinery
4. Faults	Faults may include: 4.1 Low brake fluid 4.2 Brake pedal pulsation 4.3 Low, spongy or soft brake pedal 4.4 Hard brake pedal 4.5 Scraping noise from Brakes 4.6 Brake squeal 4.7 Brakes pull to one side 4.8 Leaks
5. Repair Methods	Repair methods are to include: 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Diagnosis of Brake system/components 5.3 Adjustment of System components

	<p>5.4 Brake system bleeding</p> <p>5.5 Static and dynamic functional Brake Test</p>
6. Manuals and Information	<p>Manuals and Information may include:</p> <p>6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications</p> <p>6.2 Safe work procedures related to task</p> <p>6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>6.4 Company/manufacturer/component supplier repair manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data/manual/handbook</p> <p>6.6 Company/manufacturer/component supplier Periodic Service Maintenance Data manual/handbook</p>
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>Special tools:</p> <p>7.3 Vacuum gauge</p> <p>7.4 Pressure gauge kit</p> <p>7.5 Outside micrometer</p> <p>7.6 Brake fluid changer/ tank</p> <p>7.7 Two post vehicle lift or long floor jack and support stand set</p> <p>7.8 Roller brake test analyzer</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
9. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site</p>

	visitors
	9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice

UNIT 15 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Diagnosing and used method for brake system test in reference to company/manufacturer/component supplier repair requirements</p> <p>1.3 Conducting the repair of a brake system/ components in accordance with workplace and company/manufacturer/component supplier requirements</p> <p>1.4 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant repair specification data/manual/handbook</p> <p>2.4 Mechanical and hydraulic brake system and components</p> <p>2.5 Brake system/ components diagnosis procedure</p> <p>2.6 Brake system/ components repair procedure</p> <p>2.7 Hand/ power tools and workshop Equipment for task</p> <p>2.8 Relevant Test equipment for task</p> <p>2.9 Dangers of working with Brake test equipment</p> <p>2.10 Vehicle moving, positioning and lifting for task</p> <p>2.11 Final inspection procedure</p> <p>2.12 Workshop and Equipment maintenance</p> <p>2.13 Company/workshop Documentation requirements</p>
3. Underpinning skills	<p>3.1 Working safely</p> <p>3.2 Using Personal Protective Equipment</p> <p>3.3 Communication effectively</p> <p>3.4 Organizing materials to be used</p> <p>3.5 Using and interpreting repair specification data/manual/handbook</p>

	<p>3.6 Proper handling and use of tools and equipment</p> <p>3.7 Mounting and demount System components</p> <p>3.8 Using test equipment for task</p> <p>3.9 Maintaining orderliness and cleanliness</p> <p>3.10 Maintaining customer records</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
5. Method of assessment	<p>Competency in this Unit may be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Demonstration on simulated situation</p> <p>5.4 Written/Oral examination</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency may be assessed on the job or simulated environment.</p> <p>6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 16 REPAIR SMALL ENGINE

Unit Code	723.7231.233.004.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to repair small engines. These include two and four stroke spark ignition and/or two and four stroke compression ignition engines.

UNIT 16 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair small engine system/ components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose a small engine system	2.1 Small engine system/components are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair small engine system components	3.1 Repair small engine system/components and test for correct operation in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications 3.3 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 16 Range of Variables

VARIABLES	RANGE
1. Small Engine System	Systems include: 1.1 Two and four stroke spark ignition 1.2 Two and four stroke compression ignition 1.3 One to four Cylinder Engines up to 1500cc displacement
2. System components	Components may include: 2.1 Cylinder 2.2 Cylinder head 2.3 Piston and piston rings 2.4 Valve assembly 2.5 Crankshaft assembly 2.6 Connecting rod 2.7 Crankshaft and connecting bearing 2.8 Distribution chain assembly 2.9 Engine oil pump 2.10 Oil mixing pump (Two stroke engine)
3. Applications	System may be fitted to: 3.1 Light vehicles 3.2 Agro-Machinery 3.3 Outdoor power equipment 3.4 Marine craft 3.5 Plant
4. Faults	Faults may include: 4.1 Poor engine performance/ power 4.2 Engine won't start, 4.3 Runs poorly, 4.4 Will not idle smoothly 4.5 Engine leaks
5. Repair Methods	Repair methods are to include: 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Diagnosis of small engine system/components 5.3 Removal, dismantling, reassembly, refitting

	5.4 Adjusting and testing
6. Manuals and Information	<p>Manuals and Information may include:</p> <p>6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications</p> <p>6.2 Safe work procedures related to task</p> <p>6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>6.4 Company/manufacturer/component supplier repair manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data/manual/handbook</p> <p>6.6 Company/manufacturer/component supplier Periodic Service Maintenance Data manual/handbook</p>
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Measuring instruments (Vernier, micrometer, telescope gauge, dial tester indicator, plastic- gauge, torque wrench, feeler gauge)</p> <p>7.4 Engine lifting device</p> <p>7.5 Two post vehicle lift or long floor jack and support stand set</p> <p>7.6 Lubricant dispensing equipment</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
9. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include</p>

	prescribed under legislation regulations codes of practice and workplace policies and practice
--	------------------------------------------------------------------------------------------------

UNIT 16 Evidence Guide

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task 1.2 Diagnosing and used method for small engine test in reference to company/maker/component supplier repair requirements 1.3 Conducting the repair of a small engine system/ components in accordance with workplace and company/maker/component supplier requirements 1.4 Performing completed job documentation and work area restore
<p>2. Underpinning knowledge and attitudes</p>	<ul style="list-style-type: none"> 2.1 OHS requirements 2.2 Relevant company/workshop operating procedure 2.3 Relevant repair specification data/manual/handbook 2.4 Two and four stroke engine system and components 2.5 Spark and compression ignition system components 2.6 Engine lubrication system 2.7 Engine cooling system 2.8 Small engine system/ components diagnosis procedure 2.9 Small engine system/ components repair procedure 2.10 Hand/ power tools and workshop Equipment for task 2.11 Relevant Test equipment for task 2.12 Dangers of working with test equipment on running engines 2.13 Vehicle moving, positioning and lifting for task 2.14 Final inspection procedure 2.15 Workshop and Equipment maintenance 2.16 Company/workshop Documentation requirements
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used

	<p>3.5 Using and interpreting repair specification data/manual/handbook</p> <p>3.6 Proper handling and use of tools and equipment</p> <p>3.7 Mounting and demount System components</p> <p>3.8 Using, handling and interpreting test equipment for task</p> <p>3.9 Maintaining orderliness and cleanliness</p> <p>3.10 Maintaining customer records</p>
<p>4. Resource implications</p>	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
<p>5. Method of assessment</p>	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Demonstration on simulated situation</p> <p>5.4 Written/Oral examination</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency may be assessed on the job or simulated environment.</p> <p>6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 17 SERVICE BASIC ELECTRICAL SYSTEM

Unit Code	723.7231.523.005.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to servicing a basic electrical system for motorcycles and/or small agro-machinery's.

UNIT 17 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to service a basic electrical system/ components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare task in accordance with OHS requirements and company/workshop standard operating procedures. 1.3 Resources required for servicing are sourced. Work area, hand tools, equipment, service specification data/manual/handbook and spare parts are identified and prepared.
2. Service a basic electrical system/ components	2.1 Service basic electrical system/components and test for correct operation in accordance with company/ manufacturer/component supplier specifications 2.2 Adjustments made during the service are in accordance with manufacturer/component supplier specifications 2.3 Final inspection is made to ensure protective guards, safety features and cowlings are in place.
3. Restore work area and complete documentation	3.1 Restore and clean work area, tools and equipment. 3.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 17 Range of Variables

VARIABLES	RANGE
1. Basic electrical system	Systems include: 1.1 Charging system 1.2 Starting system 1.3 Ignition system 1.4 Lighting system

	1.5 Signal system
2. System components	<p>Components may include:</p> <ul style="list-style-type: none"> 2.1 Wiring, connector, switches, fuse and relays 2.2 Battery 2.3 Charging, lighting and ignition coils 2.4 CDI Unit 2.5 Magneto (CDI and contact based) 2.6 Spark plug 2.7 Front, Rear, Brake and Flasher light assemblies 2.8 Horn
3. Applications	<p>System may be fitted to:</p> <ul style="list-style-type: none"> 3.1 Vehicles 3.2 Agro-Machinery
4. Faults	<p>Faults may include:</p> <ul style="list-style-type: none"> 4.1 Engine: Poor performance, poor starting 4.2 Short circuit on Electrical System Components 4.3 Inoperative lighting, charging, signal systems
5. Service Methods	<p>Service Methods are to include:</p> <ul style="list-style-type: none"> 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Adjustment of System components 5.3 Functional Test
6. Manuals and Information	<p>Manuals and Information may include:</p> <ul style="list-style-type: none"> 6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications 6.2 Safe work procedures related to task 6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules 6.4 Company/manufacturer/component supplier service manual/handbook 6.5 Company/manufacturer/component supplier specification data/manual/handbook 6.6 Company/manufacturer/component supplier periodic service maintenance data manual/handbook
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <ul style="list-style-type: none"> 7.1 Hand tools

	<p>7.2 Power tools</p> <p>7.3 Multimeter or voltmeter and ohmmeter</p> <p>7.4 Battery charger</p> <p>7.5 Hydrometer</p> <p>7.6 Ammeter</p> <p>7.7 Thickness gauge set</p> <p>7.8 Engine analyzer</p> <p>7.9 Exhaust gas analyzer</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
9. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 17 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Conducting the service of a basic electrical system/ components in accordance with workplace and company/manufacturer/component supplier requirements</p> <p>1.3 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and	<p>2.1 OHS requirements</p>

attitudes	2.2 Relevant company/workshop operating procedure 2.3 Relevant service specification data/manual/handbook 2.4 Basic electrical system and Components 2.5 Exhaust gas analyzing 2.6 Basic electrical system/ components Service procedure 2.7 Hand/ power tools and workshop Equipment for task 2.8 Test equipment for task 2.9 Final inspection procedure 2.10 Workshop and Equipment maintenance 2.11 Company/workshop Documentation requirements
3. Underpinning skills	3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting service specification data/manual/handbook 3.6 Proper handling and use of tools and equipment 3.7 Mount and demount System components 3.8 Using test equipment for task 3.9 Maintaining orderliness and cleanliness 3.10 Maintaining customer records
4. Resource implications	The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Appropriate tools and equipment to this task 4.3 Materials relevant to the task 4.4 Specifications and work instruction to the task
5. Method of assessment	Competency in this Unit should be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions to underpinning knowledge 5.3 Demonstration on simulated situation 5.4 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i>
6. Context for assessment	6.1 Competency may be assessed on the job or simulated environment. 6.2 The assessment of practical skills should be take

	<p>place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>
--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------

UNIT 18 SERVICE PETROL FUEL SYSTEM

Unit Code	723.7231.223.007.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to servicing on mechanical and/or basic electric/electronic fuel system/components.

UNIT 18 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to service petrol fuel system/ components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare task in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for servicing are sourced. Work area, hand tools, equipment, service specification data/manual/handbook and spare parts are identified and prepared
2. Service a petrol fuel system/ components	2.1 Service petrol fuel system/components and test for correct operation in accordance with company/ manufacturer/component supplier specifications 2.2 Adjustments made during the service are in accordance with manufacturer/component supplier specifications 2.3 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place
3. Restore work area and complete documentation	3.1 Restore and clean work area, tools and equipment. 3.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 18 Range of Variables

VARIABLES	RANGE
1. Petrol fuel system	Systems include: 1.1 Mechanical petrol fuel systems
2. System components	Components may include: 2.1 Fuel Tank

	2.2 Fuel Filter 2.3 Fuel Pump 2.4 Fuel Lines 2.5 Carburetor 2.6 Mechanical cable (Throttle, Choke) 2.7 Air cleaner assembly
3. Applications	System may be fitted to: 3.1 Vehicles 3.2 Agro-Machinery 3.3 Outdoor power equipment 3.4 Marine craft 3.5 Plant
4. Faults	Faults may include: 4.1 Engine: Poor performance, poor starting 4.2 Blocked Filter 4.3 Leaks
5. Service Methods	Service Methods are to include: 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Adjustment of System components 5.3 Functional Test
6. Manuals and Information	Manuals and Information may include: 6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications 6.2 Safe work procedures related to task 6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules 6.4 Company/manufacturer/component supplier service manual/handbook 6.5 Company/manufacturer/component supplier specification data/manual/handbook 6.6 Company/manufacturer/component supplier periodic service maintenance data manual/handbook
7. Tools and Equipment	Tools and Equipment may include: 7.1 Hand tools 7.2 Power tools

	<p>7.3 Vacuum gauge</p> <p>7.4 Pressure gauge</p> <p>7.5 Calibration tools</p> <p>7.6 Multimeter</p> <p>7.7 Engine analyzer</p> <p>7.8 Exhaust gas analyzer</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
9. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 18 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Conducting the service of a petrol fuel systems in accordance with workplace and company/manufacture/component supplier requirements</p> <p>1.3 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant service specification data/manual/handbook</p> <p>2.4 Petrol fuel system and components</p>

	2.5 Exhaust gas analyzing 2.6 Petrol Fuel System/Components Service procedure 2.7 Hand/ power tools and workshop Equipment for task 2.8 Test equipment for task 2.9 Final inspection procedure 2.10 Workshop and Equipment maintenance 2.11 Company/workshop Documentation requirements
3. Underpinning skills	3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting service specification data/manual/handbook 3.6 Proper handling and use of tools and equipment 3.7 Mount and demount System components 3.8 Using test equipment for task 3.9 Maintaining orderliness and cleanliness 3.10 Maintaining customer records
4. Resource implications	The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Appropriate tools and equipment to this task 4.3 Materials relevant to the task 4.4 Specifications and work instruction to the task
5. Method of assessment	Competency in this Unit should be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions to underpinning knowledge 5.3 Demonstration on simulated situation 5.4 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i>
6. Context for assessment	6.1 Competency may be assessed on the job or simulated environment. 6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience. 6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines

UNIT 19 REPAIR STEERING AND SUSPENSION SYSTEM

Unit Code	723.7231.433.010.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to repair a steering and suspension system/components for light vehicle.

UNIT 19 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair steering and suspension system/components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose a steering and suspension system	2.1 Steering and suspension system/components are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair steering and suspension system/components	3.1 Repair steering and suspension system/components and test for correct operation in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications 3.3 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 19 Range of Variables

VARIABLES	RANGE
1. Steering and suspension System	Systems include: 1.1 Front suspension – dependent system 1.2 Front suspension – independent systems 1.3 Rear suspension – dependent system 1.4 Rear suspension – independent systems 1.5 Steering systems
2. Steering and suspension components	Components may include: 2.1 MacPherson assemblies 2.2 Shock absorbers 2.3 Coil springs 2.4 Leaf springs 2.5 Ball joints 2.6 Control arm 2.7 Suspension arm 2.8 Arm shafts 2.9 Torsion bars 2.10 Sway bar 2.11 Suspension Bush 2.12 Tie roads 2.13 Steering gear 2.14 Power steering pump 2.15 Belt
3. Applications	System may be fitted to: 3.1 Light vehicles 3.2 Agro-Machinery
4. Faults	Faults may include: 4.1 Pulling 4.2 Uneven tire wear 4.3 Noise and vibration while cornering 4.4 Loss of control 4.5 Steering seems to be slipping 4.6 Hard to steer
5. Repair Methods	Repair methods are to include: 5.1 Aural, visual and functional assessments (including

	<p>damage, corrosion, fluid levels, leaks, wear and safety aspects)</p> <p>5.2 Diagnosis of steering and suspension system/components</p> <p>5.3 Adjustment of steering and suspension system components</p> <p>5.4 Static and dynamic functional steering and suspension Test</p> <p>5.5 Road test drive</p>
6. Manuals and Information	<p>Manuals and Information may include:</p> <p>6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications</p> <p>6.2 Safe work procedures related to task</p> <p>6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>6.4 Company/manufacturer/component supplier repair manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data/manual/handbook</p> <p>6.6 Company/manufacturer/component supplier Periodic Service Maintenance Data manual/handbook</p>
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Torque wrench</p> <p>7.4 Coil spring compressor</p> <p>7.5 Ball joint puller</p> <p>7.6 Grease dispenser</p> <p>7.7 Fluid changer/ tank</p> <p>7.8 Hydraulic jack</p> <p>7.9 Two post vehicle lift or long floor jack and support stand set</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>

<p>9. Occupational Health and Safety (OHS) requirements</p>	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>
-------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

UNIT 19 Evidence Guide

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Diagnosing and used method for suspension system test in reference to company/manufacturer/component supplier repair requirements</p> <p>1.3 Conducting the repair of a suspension system/ components in accordance with workplace and company/manufacturer/component supplier requirements</p> <p>1.4 Performing completed job documentation and work area restore</p>
<p>2. Underpinning knowledge and attitudes</p>	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant repair specification data/manual/handbook</p> <p>2.4 Principle operation of hydraulic and gas type suspension system and components</p> <p>2.5 Principle operation of steering system and components</p> <p>2.6 Classification of grease and hydraulic lubricants for steering and suspension systems</p> <p>2.7 Suspension system/ components diagnosis procedure</p> <p>2.8 Suspension system/ components repair procedure</p> <p>2.9 Hand/ power tools and workshop equipment for task</p> <p>2.10 Relevant test equipment for task</p> <p>2.11 Dangers of working on suspension system/components</p> <p>2.12 Vehicle moving, positioning and lifting for task</p>

	2.13 Final inspection procedure 2.14 Workshop and Equipment maintenance 2.15 Company/workshop Documentation requirements
3. Underpinning skills	3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting repair specification data/manual/handbook 3.6 Proper handling and use of tools and equipment 3.7 Mounting and demount System components 3.8 Using test equipment for task 3.9 Maintaining orderliness and cleanliness 3.10 Maintaining customer records
4. Resource implications	The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Appropriate tools and equipment to this task 4.3 Materials relevant to the task 4.4 Specifications and work instruction to the task
5. Method of assessment	Competency in this Unit should be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions to underpinning knowledge 5.3 Demonstration on simulated situation 5.4 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i>
6. Context for assessment	6.1 Competency may be assessed on the job or simulated environment. 6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience. 6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines.

UNIT 20 REPAIR, BALANCE AND ALIGN WHEEL AND TIRES

Unit Code	723.7231.433.011.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to diagnose, repair, balance and align wheel and tires for light vehicle. It includes also tube vulcanization.

UNIT 20 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair wheel and tires	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose wheel and tires	2.1 Wheel and tires are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair, balance and align wheel and tires	3.1 Repair wheel and tires and test for correct operation in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications 3.3 Balancing the wheel in accordance with company/manufacture/component supplier specifications 3.4 Aligning the wheel in accordance with company/manufacture/component supplier specifications 3.5 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job

documentation	cards, check list, reports and workshop manuals.
---------------	--------------------------------------------------

UNIT 20 Range of Variables

VARIABLES	RANGE
1. Wheel and tires types	Types include: 1.1 Tube tires 1.2 Tubeless tiers 1.3 Steel rim 1.4 Magnesium alloy rim
2. System components	Components may include: 2.1 Tube 2.2 Rim 2.3 Wheel bearing
3. Applications	System may be fitted to: 3.1 Light vehicles 3.2 Agro-Machinery
4. Faults	Faults may include: 4.1 Tire pressure 4.2 Tire tread wear defects and abnormality 4.3 Noise and rolling rumble noticed with wheel speed
5. Repair Methods	Repair methods are to include: 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Diagnosis of Wheel and Tire components 5.3 Adjustment of Wheel components 5.4 Static and/or dynamic wheel balancing 5.5 Wheel alignment 5.6 Road Test drive
6. Manuals and Information	Manuals and Information may include: 6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications 6.2 Safe work procedures related to task 6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules 6.4 Company/manufacturer/component supplier repair

	<p>manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data/manual/handbook</p> <p>6.6 Company/manufacturer/component supplier Periodic Service Maintenance Data manual/handbook</p>
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Tire pressure gauge</p> <p>7.4 Torque wrench</p> <p>7.5 Spoke wrench</p> <p>7.6 Dial tester indicator</p> <p>7.7 Support stand set</p> <p>7.8 Tube vulcanizing machine</p> <p>7.9 Wheel Truing & Balancing Stand</p> <p>7.10 Wheel aligner</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
9. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 20 Evidence Guide

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task 1.2 Diagnosing and used method for wheel and tire test in reference to company/manufacturer/component supplier repair requirements 1.3 Conducting the repair, balance and align of wheel and tire components in accordance with workplace and company/manufacturer/component supplier requirements 1.4 Performing completed job documentation and work area restore
<p>2. Underpinning knowledge and attitudes</p>	<ul style="list-style-type: none"> 2.1 OHS requirements 2.2 Relevant company/workshop operating procedure 2.3 Relevant repair specification data/manual/handbook 2.4 Wheel and tire system types and components 2.5 Wheel and tire components diagnosis procedure 2.6 Wheel and tire components repair procedure 2.7 Wheel and tire balance and align procedure 2.8 Hand/ power tools and workshop Equipment for task 2.9 Relevant Test equipment for task 2.10 Dangers of working with wheel and tire balance equipment 2.11 Vehicle moving, positioning and lifting for task 2.12 Final inspection procedure 2.13 Workshop and Equipment maintenance 2.14 Company/workshop Documentation requirements
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting repair specification data/manual/handbook 3.6 Applying metric and inch size 3.7 Proper handling and use of tools and equipment 3.8 Mounting and demount wheel and tire components 3.9 Using test equipment for task

	<p>3.10 Maintaining orderliness and cleanliness</p> <p>3.11 Maintaining customer records</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Demonstration on simulated situation</p> <p>5.4 Written/Oral examination</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency may be assessed on the job or simulated environment.</p> <p>6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines.</p>

UNIT 21 SERVICE DIESEL FUEL SYSTEM

Unit Code	723.7231.223.013.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to servicing diesel fuel system/components.

UNIT 21 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to service diesel fuel system/ components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare task in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for servicing are sourced. Work area, hand tools, equipment, service specification data/manual/handbook and spare parts are identified and prepared
2. Service a diesel fuel system/ components	2.1 Service diesel fuel system/components and test for correct operation in accordance with company/ manufacturer/component supplier specifications 2.2 Adjustments made during the service are in accordance with manufacturer/component supplier specifications 2.3 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place
3. Restore work area and complete documentation	3.1 Restore and clean work area, tools and equipment. 3.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 21 Range of Variables

VARIABLES	RANGE
1. Diesel fuel system	Systems include: 1.1 Diesel mechanic control fuel systems 1.2 Diesel electronic control fuel systems 1.3 Common rail diesel injection system

<p>2. System components</p>	<p>Components may include:</p> <ul style="list-style-type: none"> 2.1 Fuel Tank 2.2 Fuel Lines 2.3 Fuel Filter 2.4 Fuel Lift/transfer pump 2.5 Inline-injection pump 2.6 Distributer injection pump 2.7 Diesel injectors 2.8 Glow plugs 2.9 Mechanical cable (Throttle, Choke) 2.10 Electrical/ electronic control unit 2.11 Air cleaner assembly
<p>3. Applications</p>	<p>System may be fitted to:</p> <ul style="list-style-type: none"> 3.1 Vehicles 3.2 Agro-Machinery 3.3 Outdoor power equipment 3.4 Marine craft 3.5 Plant
<p>4. Faults</p>	<p>Faults may include:</p> <ul style="list-style-type: none"> 4.1 Engine: Poor performance, poor starting 4.2 Blocked Filter 4.3 Leaks
<p>5. Service Methods</p>	<p>Service Methods are to include:</p> <ul style="list-style-type: none"> 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Adjustment of System components 5.3 Functional Test
<p>6. Manuals and Information</p>	<p>Manuals and Information may include:</p> <ul style="list-style-type: none"> 6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications 6.2 Safe work procedures related to task 6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules 6.4 Company/manufacturer/component supplier service manual/handbook 6.5 Company/manufacturer/component supplier

	<p>specification data/manual/handbook</p> <p>6.6 Company/manufacturer/component supplier periodic service maintenance data manual/handbook</p>
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Torque wrench</p> <p>7.4 Vacuum gauge</p> <p>7.5 Pressure gauge</p> <p>7.6 Calibration tools</p> <p>7.7 Multimeter or Volt and Ohmmeter</p> <p>7.8 Exhaust gas analyzer</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
9. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 21 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Conducting the service of a diesel fuel systems in accordance with workplace and company/manufacturer/component supplier</p>
-----------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p>requirements</p> <p>1.3 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant service specification data/manual/handbook</p> <p>2.4 Diesel fuel system and components</p> <p>2.5 Exhaust gas analyzing</p> <p>2.6 Diesel Fuel System/Components Service procedure</p> <p>2.7 Hand/ power tools and workshop Equipment for task</p> <p>2.8 Test equipment for task</p> <p>2.9 Final inspection procedure</p> <p>2.10 Workshop and Equipment maintenance</p> <p>2.11 Company/workshop Documentation requirements</p>
3. Underpinning skills	<p>3.1 Working safely</p> <p>3.2 Using Personal Protective Equipment</p> <p>3.3 Communication effectively</p> <p>3.4 Organizing materials to be used</p> <p>3.5 Using and interpreting service specification data/manual/handbook</p> <p>3.6 Proper handling and use of tools and equipment</p> <p>3.7 Mount and demount System components</p> <p>3.8 Using test equipment for task</p> <p>3.9 Maintaining orderliness and cleanliness</p> <p>3.10 Maintaining customer records</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Demonstration on simulated situation</p> <p>5.4 Written/Oral examination</p> <p><i>Evidence provided for competency determination will</i></p>

	<i>be Valid, Sufficient & Current</i>
6. Context for assessment	<p>6.1 Competency may be assessed on the job or simulated environment.</p> <p>6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines.</p>

UNIT 22 REPAIR ENGINE WEAR

Unit Code	723.7231.223.014.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to diagnose and repair engine wear for vehicle to manufacture specifications.

UNIT 22 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair engine wear	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose an engine system	2.1 Engine system/components are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair engine wear on system/ components	3.1 Repair engine system/components and test for correct operation in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications. 3.3 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 22 Range of Variables

VARIABLES	RANGE
1. Engine system	Systems include: 1.1 Two stroke engine 1.2 Four stroke engine
2. System components	Components may include: 2.1 Engine block 2.2 Cylinder head assembly 2.3 Crankshaft 2.4 Camshaft 2.5 Piston 2.6 Piston rings 2.7 Connecting rod 2.8 Oil pump 2.9 Water pump 2.10 Timing Belt Tensioner 2.11 Timing Belt 2.12 Chain (timing / oil pump) 2.13 Bearings 2.14 Bushes 2.15 Pulleys 2.16 Engine Gasket/ seal 2.17 Motor and Transmission mount
3. Applications	System may be fitted to: 3.1 Light vehicles including Motorbikes 3.2 Agro-Machinery 3.3 Outdoor power equipment 3.4 Marine craft 3.5 Plant
4. Faults	Faults may include: 4.1 Poor engine performance 4.2 Constant excessive white or black smoke from the vehicle exhaust 4.3 Low compression 4.4 Overheat engine 4.5 Engine Noises, grinding, knocking

	4.6 Water and/or oil leaks
5. Repair Methods	<p>Repair methods are to include:</p> <p>5.1 aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects)</p> <p>5.2 Diagnosis of engine system/components</p> <p>5.3 Mount and demount system components</p> <p>5.4 Adjustment of system components</p> <p>5.5 Static and dynamic functional engine Test</p>
6. Manuals and Information	<p>Manuals and Information may include:</p> <p>6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications</p> <p>6.2 Safe work procedures related to task</p> <p>6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>6.4 Company/manufacturer/component supplier repair manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data/manual/handbook</p> <p>6.6 Company/manufacturer/component supplier Periodic Service Maintenance Data manual/handbook</p>
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Torque wrench</p> <p>7.4 Outside micrometer</p> <p>7.5 Vernier</p> <p>7.6 Plastic gage</p> <p>7.7 Feeler gauge</p> <p>7.8 Stethoscope</p> <p>7.9 Piston ring compressor</p> <p>7.10 Piston ring compressor pliers</p> <p>7.11 Oiler</p> <p>7.12 Oil changer/ tank</p> <p>7.13 Engine jack</p> <p>7.14 Engine support stand</p>
8. Company/ workshop standard operating	Company/workshop standard operating procedures include:

procedures	8.1 Verbal or written instructions issued by authorized personal 8.2 Job order slip 8.3 Spare parts ordering form 8.4 Wearing of Personal Protective Equipment
9. Occupational Health and Safety (OHS) requirements	OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: 9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors 9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice

UNIT 22 Evidence Guide

1. Critical aspects of Competency	Assessment requires evidence that the candidate: 1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task 1.2 Diagnosing and used method for engine system test in reference to company/manufacturer/component supplier repair requirements 1.3 Conducting the repair a engine system/ components in accordance with workplace and company/manufacturer/component supplier requirements 1.4 Performing completed job documentation and work area restore
2. Underpinning knowledge and attitudes	2.1 OHS requirements 2.2 Relevant company/workshop operating procedure 2.3 Relevant repair specification data/manual/handbook 2.4 Operation and function of mechanical engine system and components 2.5 Mechanic/ technician units of measurement 2.6 Engine system/ components diagnosis procedure 2.7 Engine system/ components repair procedure 2.8 Hand/ power tools and workshop Equipment for task 2.9 Relevant Test equipment for task

	2.10 Dangers of working with engine test equipment 2.11 Vehicle moving, positioning and lifting for task 2.12 Final inspection procedure 2.13 Workshop and Equipment maintenance 2.14 Company/workshop Documentation requirements
3. Underpinning skills	3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting repair specification data/manual/handbook 3.6 Proper handling and use of tools and equipment 3.7 Mounting and demount System components 3.8 Using test equipment for task 3.9 Maintaining orderliness and cleanliness 3.10 Maintaining customer records
4. Resource implications	The following resources should be provided: 4.1 Workplace location or simulated work area 4.2 Appropriate tools and equipment to this task 4.3 Materials relevant to the task 4.4 Specifications and work instruction to the task
5. Method of assessment	Competency in this Unit should be assessed through: 5.1 Direct Observation on actual workplace 5.2 Questions to underpinning knowledge 5.3 Demonstration on simulated situation 5.4 Written/Oral examination <i>Evidence provided for competency determination will be Valid, Sufficient & Current</i>
6. Context for assessment	6.1 Competency may be assessed on the job or simulated environment. 6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience. 6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines.

UNIT 23 REPAIR IGNITION SYSTEM

Unit Code	723.7231.533.015.01
Unit Descriptor	This Unit covers the Skills, Knowledge & Attitudes required to diagnose and repair engine ignition system/components.

UNIT 23 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair ignition system/ components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose an ignition system	2.1 Ignition system/components are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair ignition system/ components	3.1 Repair ignition system/components and test for correct operation in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications 3.3 Prepare vehicle for test drive, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, checklist, reports and workshop manuals.

UNIT 23 Range of Variables

VARIABLES	RANGE
1. Ignition System	Systems include: 1.1 Battery or Coil ignition system 1.2 Magneto ignition system 1.3 Electronic control ignition systems
2. System components	Components may include: 2.1 Battery 2.2 Ignition switch 2.3 Ignition coil 2.4 Ignition cable 2.5 Spark plug 2.6 Distributor assembly (incl. Cap, Rotor, Contact breaker and condenser) 2.7 Vacuum advance unit 2.8 Ignition control unit 2.9 CDI and magnetic pulse
3. Applications	System may be fitted to: 3.1 Light vehicles including Motorbikes 3.2 Agro-Machinery 3.3 Marine craft 3.4 Plant
4. Faults	Faults may include: 4.1 Engine not starting 4.2 Poor performance 4.3 Overheating 4.4 Cracks
5. Repair Methods	Repair methods are to include: 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Diagnosis of ignition system/components 5.3 Adjustment of System components 5.4 Static and dynamic functional ignition System Test
6. Manuals and Information	Manuals and Information may include: 6.1 Verbal or written and graphical instructions, signage,

	<p>work schedules/plans/specifications</p> <p>6.2 Safe work procedures related to task</p> <p>6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>6.4 Company/manufacturer/component supplier repair manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data/manual/handbook</p> <p>6.6 Company/manufacturer/component supplier Periodic Service Maintenance Data manual/handbook</p>
7. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Vacuum gauge</p> <p>7.4 Thickness gauge set</p> <p>7.5 Multimeter or Volt- and Ohmmeter</p> <p>7.6 Engine analyzer or timing light and dwell tester</p>
8. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
9. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 23 Evidence Guide

1. Critical aspects of	Assessment requires evidence that the candidate:
------------------------	--------------------------------------------------

Competency	<p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Diagnosing and used method for ignition system test in reference to company/manufacture/component supplier repair requirements</p> <p>1.3 Conducting the repair of an ignition system/ components in accordance with workplace and company/manufacture/component supplier requirements</p> <p>1.4 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant repair specification data/manual/handbook</p> <p>2.4 Principe of two and four stoke petrol engines</p> <p>2.5 Operation and function of ignition system/ components</p> <p>2.6 Ignition system/ components diagnosis procedure</p> <p>2.7 Ignition system/ components repair procedure</p> <p>2.8 Hand/ power tools and workshop equipment for task</p> <p>2.9 Relevant test equipment for task</p> <p>2.10 Dangers of working on ignition system/components</p> <p>2.11 Vehicle moving, positioning and lifting for task</p> <p>2.12 Final inspection procedure</p> <p>2.13 Workshop and Equipment maintenance</p> <p>2.14 Company/workshop Documentation requirements</p>
3. Underpinning skills	<p>3.1 Working safely</p> <p>3.2 Using Personal Protective Equipment</p> <p>3.3 Communication effectively</p> <p>3.4 Organizing materials to be used</p> <p>3.5 Using and interpreting repair specification data/manual/handbook</p> <p>3.6 Proper handling and use of tools and equipment</p> <p>3.7 Mounting and demount System components</p> <p>3.8 Using test equipment for task</p> <p>3.9 Maintaining orderliness and cleanliness</p> <p>3.10 Maintaining customer records</p>
4. Resource implications	The following resources should be provided:

	<p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
<p>5. Method of assessment</p>	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Demonstration on simulated situation</p> <p>5.4 Written/Oral examination</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
<p>6. Context for assessment</p>	<p>6.1 Competency may be assessed on the job or simulated environment.</p> <p>6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines</p>

UNIT 24 REPAIR AGRO-MACHINERY HYDRAULIC SYSTEMS

Unit Code	723.7231.133.016.01
Unit Descriptor	This Unit covers the skills, knowledge & attitudes required to diagnose and repair agro-machinery hydraulic system/components to manufacture specifications.

UNIT 24 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair agro-machinery hydraulic system/components	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose agro-machinery hydraulic system/components	2.1 Agro-machinery hydraulic system/components are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair agro-machinery hydraulic system/components	3.1 Repair agro-machinery hydraulic system/ components in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications. 3.3 Perform final test for correct operation, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 24 Range of Variables

VARIABLES	RANGE
1. Agro-machinery hydraulic system	Systems include: 1.1 Hydraulic systems to drive agro-machinery applications
2. System components	Components may include: 2.1 Pumps 2.2 Tanks 2.3 Pipes 2.4 Filters 2.5 Valves 2.6 Distributors 2.7 Pressure regulators 2.8 Actuators 2.9 Cylinders 2.10 Hydraulic motors
3. Applications	System may be fitted to: 3.1 Agro-Machinery 3.2 Outdoor power equipment
4. Faults	Faults may include: 4.1 Oil leaks 4.2 Broken pipes 4.3 Pump 4.4 Filters
5. Repair Methods	Repair methods are to include: 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Diagnosis of agro-machinery hydraulic system/ components 5.3 Mount and demount system components 5.4 Adjustment of system components 5.5 Static and dynamic functional system test
6. Manuals and Information	Manuals and Information may include: 6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications

	<p>6.2 Safe work procedures related to task</p> <p>6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>6.4 Company/manufacturer/component supplier repair manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data manual/handbook</p> <p>6.6 Company/manufacturer/component supplier periodic service maintenance data manual/handbook</p>
<p>7. Tools and Equipment</p>	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Torque wrench</p> <p>7.4 Outside micrometer</p> <p>7.5 Vernier</p> <p>7.6 Pressure gauge kit</p> <p>7.7 Oil changer/ tank</p> <p>7.8 Lifting equipment</p> <p>7.9 Cleaning Equipment and products</p>
<p>8. Company/ workshop standard operating procedures</p>	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
<p>9. Occupational Health and Safety (OHS) requirements</p>	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>

UNIT 24 Evidence Guide

<p>1. Critical aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task 1.2 Diagnosing and used method for agro-machinery hydraulic system test in reference to company/manufacturer/component supplier repair requirements 1.3 Conducting the repair of a agro-machinery hydraulic system/ components in accordance with workplace and company/manufacturer/component supplier requirements 1.4 Performing completed job documentation and work area restore
<p>2. Underpinning knowledge and attitudes</p>	<ul style="list-style-type: none"> 2.1 OHS requirements 2.2 Relevant company/workshop operating procedure 2.3 Relevant repair specification data/manual/handbook 2.4 Operation and function of agro-machinery hydraulicsystem and components 2.5 Mechanic/ technician units of measurement 2.6 Agro-machinery hydraulic system/ components diagnosis procedure 2.7 Agro-machinery hydraulic system/ components repair procedure 2.8 Hand/ power tools and workshop equipment for task 2.9 Relevant test equipment for task 2.10 Dangers of working with agro-machinery hydraulic test equipment 2.11 Vehicle moving, positioning and lifting for task 2.12 Final inspection procedure 2.13 Workshop and Equipment maintenance 2.14 Company/workshop documentation requirements
<p>3. Underpinning skills</p>	<ul style="list-style-type: none"> 3.1 Working safely 3.2 Using Personal Protective Equipment 3.3 Communication effectively 3.4 Organizing materials to be used 3.5 Using and interpreting repair specification data/manual/handbook 3.6 Proper handling and use of tools and equipment

	<p>3.7 Mounting and demount System components</p> <p>3.8 Using test equipment for task</p> <p>3.9 Maintaining orderliness and cleanliness</p> <p>3.10 Maintaining customer records</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Demonstration on simulated situation</p> <p>5.4 Written/Oral examination</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency may be assessed on the workplace or simulated environment.</p> <p>6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines.</p>

UNIT 25 REPAIR AGRICULTURAL MACHINERY EQUIPMENT

Unit Code	723.7231.133.017.01
Unit Descriptor	This Unit covers the skills, knowledge & attitudes required to diagnose and repair agricultural machinery equipment to manufacture specifications.

UNIT 25 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to repair agricultural machinery equipment	1.1 Nature and scope of work requirements are identified, interpreted and confirmed 1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures 1.3 Resources required for repairing are sourced. Work area, hand tools, equipment, repair specification data/manual/handbook and spare parts are identified and prepared
2. Diagnose agricultural machinery equipment	2.1 Agricultural machinery equipment are diagnosed in accordance with company/manufacture/component supplier repair manual requirements 2.2 Results are documented and Report is forwarded to persons for action in accordance with workplace procedures
3. Repair agricultural machinery equipment	3.1 Repair agricultural machinery equipment in accordance with company/manufacture/component supplier specifications 3.2 Adjustments made during the repair are in accordance with manufacturer/component supplier specifications. 3.3 Conduct final test for correct operation, including final inspection to ensure protective guards, safety features and cowlings are in place.
4. Restore work area and complete documentation	4.1 Restore and clean work area, tools and equipment. 4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.

UNIT 25 Range of Variables

VARIABLES	RANGE
1. Agricultural machinery equipment	May include equipment for: <ul style="list-style-type: none"> 1.1 Soil cultivation 1.2 Planting 1.3 Fertilizing & pest control 1.4 Irrigation 1.5 Product sorter 1.6 Harvesting / post-harvest 1.7 Hay making 1.8 Loading 1.9 Milking 1.10 Obsolete farm machinery
2. Power drive components for agricultural machinery equipment	Components may include: <ul style="list-style-type: none"> 2.1 Chains and sprockets 2.2 Belts 2.3 Connecting roads and cranks 2.4 Gears
3. Applications	System may be fitted to: <ul style="list-style-type: none"> 3.1 Agro-Machinery 3.2 Outdoor power equipment
4. Faults	Faults may include: <ul style="list-style-type: none"> 4.1 Oil leaks 4.2 Breakage and cracks 4.3 Excessive wear of bearings 4.4 Excessive Games 4.5 Dull knives and blades
5. Repair Methods	Repair methods are to include: <ul style="list-style-type: none"> 5.1 Aural, visual and functional assessments (including damage, corrosion, fluid levels, leaks, wear and safety aspects) 5.2 Diagnosis of agricultural machinery equipment 5.3 Mount and demount system components 5.4 Adjustment of system components 5.5 Static and dynamic functional system test

<p>6. Manuals and Information</p>	<p>Manuals and Information may include:</p> <p>6.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications</p> <p>6.2 Safe work procedures related to task</p> <p>6.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>6.4 Company/manufacturer/component supplier repair manual/handbook</p> <p>6.5 Company/manufacturer/component supplier specification data manual/handbook</p> <p>6.6 Company/manufacturer/component supplier periodic service maintenance data manual/handbook</p>
<p>7. Tools and Equipment</p>	<p>Tools and Equipment may include:</p> <p>7.1 Hand tools</p> <p>7.2 Power tools</p> <p>7.3 Torque wrench</p> <p>7.4 Bearing puller</p> <p>7.5 Oil changer/ tank</p> <p>7.6 Grease gun</p> <p>7.7 Lifting equipment</p> <p>7.8 Support stand</p> <p>7.9 Welding stations (gas and/or arc welding)</p> <p>7.10 Cleaning Equipment and products</p>
<p>8. Company/ workshop standard operating procedures</p>	<p>Company/workshop standard operating procedures include:</p> <p>8.1 Verbal or written instructions issued by authorized personal</p> <p>8.2 Job order slip</p> <p>8.3 Spare parts ordering form</p> <p>8.4 Wearing of Personal Protective Equipment</p>
<p>9. Occupational Health and Safety (OHS) requirements</p>	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>9.1 To conduct of operational risk assessment and treatments associated with Vehicular movements, hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>9.2 Use of personal protective equipment that include</p>

	prescribed under legislation regulations codes of practice and workplace policies and practice
--	------------------------------------------------------------------------------------------------

UNIT 25 Evidence Guide

1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Diagnosing and used method for agricultural machinery equipment test in reference to company/manufacturer/component supplier repair requirements</p> <p>1.3 Conducting the repair of an agricultural machinery equipment in accordance with workplace and company/manufacturer/component supplier requirements</p> <p>1.4 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant repair specification data/manual/handbook</p> <p>2.4 Operation and function of selected agricultural machinery equipment</p> <p>2.5 Mechanic/ technician units of measurement</p> <p>2.6 Agricultural machinery equipment diagnosis procedure</p> <p>2.7 Agricultural machinery equipment repair procedure</p> <p>2.8 Hand/ power tools and workshop equipment for task</p> <p>2.9 Relevant test equipment for task</p> <p>2.10 Dangers of working with agricultural machinery equipment</p> <p>2.11 Agricultural machinery equipment moving, positioning and lifting for task</p> <p>2.12 Final inspection procedure</p> <p>2.13 Workshop and Equipment maintenance</p> <p>2.14 Company/workshop documentation requirements</p>
3. Underpinning skills	<p>3.1 Working safely</p> <p>3.2 Using Personal Protective Equipment</p> <p>3.3 Communication effectively</p> <p>3.4 Organizing materials to be used</p>

	<p>3.5 Using and interpreting repair specification data/manual/handbook</p> <p>3.6 Proper handling and use of tools and equipment</p> <p>3.7 Proper handling and safety use of welding equipment</p> <p>3.8 Mounting and demount System components</p> <p>3.9 Using test equipment for task</p> <p>3.10 Maintaining orderliness and cleanliness</p> <p>3.11 Maintaining customer records</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Demonstration on simulated situation</p> <p>5.4 Written/Oral examination</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency may be assessed on the workplace or simulated environment.</p> <p>6.2 The assessment of practical skills should be take place after a period of supervised practice and repetitive experience.</p> <p>6.3 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines.</p>

UNIT 26 *PERFORM ROUTINE BRAZING/WELDING*

Unit Code	723.7233.123.020.01
Unit Descriptor	<p>This Unit covers the skills, knowledge & attitudes required to preparing materials and performing routine brazing, oxy acetylene or metal arc welding in accordance to work requirements and manufacture specifications.</p> <p>This unit applies in a maintenance or manufacturing environment where the welding is not required to meet a Lao standard or equivalent.</p>

UNIT 26 Elements & Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA Italicized terms as elaborated in the Rang of Variables
1. Prepare to weld/braze	<p>1.1 Nature and scope of work requirements are identified, interpreted and confirmed</p> <p>1.2 Plan, select and prepare tasks in accordance with OHS requirements and company/workshop standard operating procedures</p> <p>1.3 Resources required for preparing welding/brazing materials are sourced. Work area, hand tools, equipment, work specification data/manual/handbook and welding material are identified and prepared</p>
2. Prepare Materials and Equipment for welding/brazing	<p>2.1 Materials are cleaned and prepared ready for welding in accordance with the work plan and specifications.</p> <p>2.2 Welding equipment is set up correctly.</p> <p>2.3 Settings and consumables are selected.</p>
3. Perform routine welding/brazing using oxy acetylene or metal arc welding	<p>3.1 Materials are welded/brazed in accordance with the work plan, specifications, OHS and job requirements</p> <p>3.2 Welds/brazes are cleaned using appropriate tools and techniques in accordance with the work plan and specifications</p> <p>3.3 Welds/brazes are inspected visually and defects identified and repaired using appropriate techniques and in accordance with the work plan.</p>
4. Restore work area and complete documentation	<p>4.1 Restore and clean work area, tools and equipment.</p> <p>4.2 Complete and restore Documentation includes job cards, check list, reports and workshop manuals.</p>

UNIT 26 Range of Variables

VARIABLES	RANGE
1. Welding process	Basic definitions should be according to BS EN ISO 4063: 1.1 GAS WELDING PROCESS 111 Metal Arc Welding 311 Oxy-acetylene gas welding
2. Welding requirements	Welding requirements should be: 2.1 Welding position Flat, horizontal, vertical and overhead 2.2 Material type Carbon Metal Pure copper 2.3 Type and size of consumables Pure copper filler wire (diameter 0.8 – 2.4mm) Brazing fluxes 2.4 Type of pre-heating Blow torch 2.5 Type of gas Oxygen/acetylene
3. Weld defects	May include: 3.1 Porosity 3.2 Undercut 3.3 Concavity/convexity 3.4 Degree of reinforcement 3.5 Burn through 3.6 Crater cracks 3.7 Cracks 3.8 Lack of fusion 3.9 Overlap 3.10 Pinholes/blowholes 3.11 Under fill 3.12 Misalignment 3.13 Distortion
4. Specification	Specifications based on 4.1 Welding codes

	<p>4.2 Reference Industry standards</p> <p>4.3 Client specification</p>
5. Manuals and Information	<p>Manuals and Information may include:</p> <p>5.1 Verbal or written and graphical instructions, signage, work schedules/plans/specifications</p> <p>5.2 Safe work procedures related to task</p> <p>5.3 Regulatory legislative requirements pertaining to the automotive industry including Lao Design Rules</p> <p>5.4 Company/manufacturer/component supplier welding manual/handbook</p> <p>5.5 Company/manufacturer/component supplier welding specification data/manual/handbook</p> <p>5.6 Company/manufacturer/component supplier periodic service maintenance data manual/handbook</p>
6. Tools and Equipment	<p>Tools and Equipment may include:</p> <p>6.1 Hand tools</p> <p>6.2 Power tools</p> <p>6.3 Measurements tools</p> <p>6.4 Cutting equipment</p> <p>6.5 OA welding equipment</p> <p>6.6 Metal arc welding equipment</p> <p>6.7 Lifting equipment</p> <p>6.8 Welding Support stand</p> <p>6.9 Personal protective equipment</p> <p>6.10 Stand-by fire-fighting equipment</p>
7. Company/ workshop standard operating procedures	<p>Company/workshop standard operating procedures include:</p> <p>7.1 Verbal or written instructions issued by authorized personal</p> <p>7.2 Job order slip</p> <p>7.3 Spare parts ordering form</p> <p>7.4 Material ordering form</p> <p>7.5 Wearing of Personal Protective Equipment</p>
8. Occupational Health and Safety (OHS) requirements	<p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <p>8.1 To conduct of operational risk assessment and treatments associated with Vehicular movements,</p>

	<p>hazardous substances, Electrical safety manual, lifting and shifting working in proximity to others a site visitors</p> <p>8.2 Use of personal protective equipment that include prescribed under legislation regulations codes of practice and workplace policies and practice</p>
--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

UNIT 26 Evidence Guide

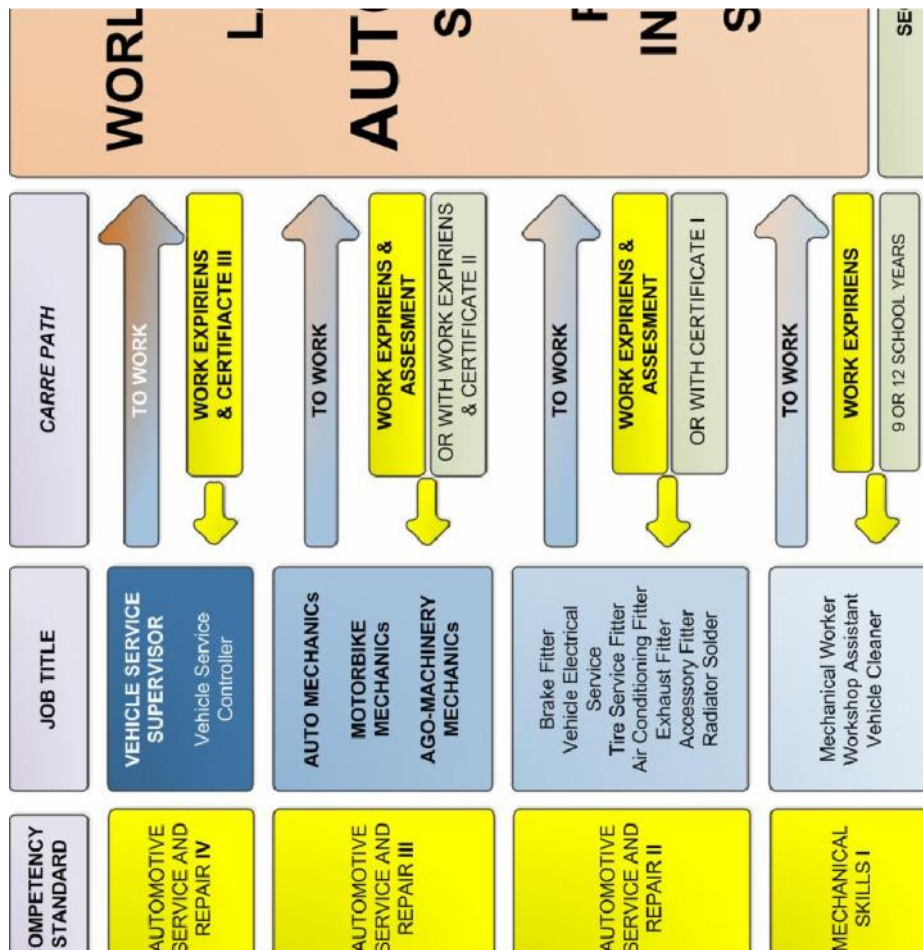
1. Critical aspects of Competency	<p>Assessment requires evidence that the candidate:</p> <p>1.1 Selecting and used appropriate procedure, manuals, tools and equipment to carry out task</p> <p>1.2 Preparing weld/braze materials to perform task</p> <p>1.3 Weld/braze metals using the oxy-acetylene gas welding/brazing process in to work requirements and manufacture specifications</p> <p>1.4 Performing completed job documentation and work area restore</p>
2. Underpinning knowledge and attitudes	<p>2.1 OHS requirements</p> <p>2.2 Relevant company/workshop operating procedure</p> <p>2.3 Relevant welding specification data/manual/handbook</p> <p>2.4 Interpretation of welding plans and codes</p> <p>2.5 Kinds and specification of welding material</p> <p>2.6 Mechanic/ technician units of measurement</p> <p>2.7 Procedure of OA and metal arc welding process</p> <p>2.8 Welding materials and consumables</p> <p>2.9 Interpreting of welding defects</p> <p>2.10 Hand/ power tools, workshop and welding equipment and equipment settings for task</p> <p>2.11 Weld work dangers</p> <p>2.12 Workshop and Equipment maintenance</p> <p>2.13 Company/workshop Documentation requirements</p>
3. Underpinning skills	<p>3.1 Working safely</p> <p>3.2 Using Personal Protective Equipment</p> <p>3.3 Communication effectively</p> <p>3.4 Organizing materials to be used</p> <p>3.5 Reading and interpreting routine information on written job instructions, specifications and standard operating procedures</p>

	<p>3.6 Preparing materials</p> <p>3.7 Setting up welding equipment</p> <p>3.8 Using measurement skills for joint preparation</p> <p>3.9 Applying OA and metal arc welding techniques</p> <p>3.10 Rectifying weld defects</p> <p>3.11 Proper handling and use of tools and equipment</p> <p>3.12 Maintaining orderliness and cleanliness</p> <p>3.13 Maintaining customer records</p>
4. Resource implications	<p>The following resources should be provided:</p> <p>4.1 Workplace location or simulated work area</p> <p>4.2 Appropriate tools and equipment to this task</p> <p>4.3 Materials relevant to the task</p> <p>4.4 Specifications and work instruction to the task</p> <p>4.5 Personal Protective Equipment</p> <p>4.6 Stand-by fire-fighting equipment</p>
5. Method of assessment	<p>Competency in this Unit should be assessed through:</p> <p>5.1 Direct Observation on actual workplace</p> <p>5.2 Questions to underpinning knowledge</p> <p>5.3 Performance test (demonstration) workplace or simulated situation</p> <p>5.4 Inspection of weld work</p> <p>5.5 Written/Oral examination</p> <p><i>Evidence provided for competency determination will be Valid, Sufficient & Current</i></p>
6. Context for assessment	<p>6.1 Competency should be assessed on workplace or simulated environment.</p> <p>6.2 Assessment must be undertaken in accordance with Lao PDR CBT assessment guidelines.</p>

H ANNEX

ANNEX:

H.1 AWARD & PROGRESSION / ENTRY REQUIREMENTS



ANNEX:

H.2 LAO AUTOMOTIVE SUB-SECTOR CODE

Sub-Sector Code:

00	no work category
10	General
20	Engine
30	Powertrain
40	Chassis & Suspension
50	Electrical
60	Body & Painting

Competency Unit Standards by Sub-Sector:

UNIT NO	UNIT TITLE
00	no category
723.7231.031.001.01	LEAD WORKPLAC COMMUNICATION
723.7231.031.002.01	LEAD SMALL TEAMS
723.7231.031.003.01	PRACTICE NEGOTIATION SKILLS
723.7231.031.004.01	SOLVE PROBLEMS RELATED TO WORK ACTIVITIES
723.7231.021.005.01	USE MATHEMATICAL CONCEPTS & TECHNIQUES
723.7231.021.006.01	USE RELEVANT TECHNOLOGIES
723.7231.021.007.01	APPLY GENDER AND SOCIAL EQUITY PRINCIPLES AND POLICIES
10	General
723.7231.122.001.01	OBSERVE POCEDURES, SPECIFIATIONS & MANUALS OF INSTRUCTION
723.7231.122.002.01	INTERPRET TECHNICAL DRAWING & PLANS
723.7231.122.003.01	PERFORM MENSURATION AND CALCULATION
723.7231.122.004.01	APPLY OCCUPATIONAL HEALTHS & SAFETY REQUIERMENTS
723.7231.122.005.01	MOVE VEHICLE
723.7231.122.006.01	MOUNT AND DEMOUNT SYSTEM COMPONENTS
723.7231.132.007.01	PERFORM PERIODICAL MAINTENANCE
723.7231.133.016.01	REPAIR AGRO-MACHINERY HYDRAULIC SYSTEMS
723.7231.133.017.01	REPAIR AGRICULTURAL MACHINERY EQUIPMENT

723.7233.123.020.01	PERFORM ROUTINE BRAZING/WELDING
20	Engine
723.7231.223.007.01	SERVICE PETROL FUEL SYSTEM
723.7231.233.008.01	REPAIR COOLING SYSTEM
723.7231.223.013.01	SERVICE DIESEL FULE SYSTEM
723.7231.223.014.01	REPAIR ENGINE WEAR
723.7231.233.004.01	REPAIR SMALL ENGINE
30	Power Train
723.7231.333.009.01	REPAIR CLUTCH SYSTEM
40	Chassis & Suspension
723.7231.433.001.01	REPAIR BRAKE SYSTEM
723.7231.433.010.01	REPAIR STEERING AND SUSPENSION SYSTEM (AOM)
723.7231.433.011.01	REPAIR, BALANCE AND ALIGN WHEEL AND TIRES
723.7231.433.002.01	REPAIR WHEEL AND TIRES (MOTORBIKE)
723.7231.433.003.01	REPAIR FINAL DRIVE (MOTORBIKE)
723.7231.433.006.01	REPAIR STEERING AND SUSPENSION SYSTEM (MOTORBIKE)
50	Electrical
723.7231.533.015.01	REPAIR IGNITION SYSTEM
723.7231.533.012.01	SERVICE ELECTICAL LIGHT, SIGNAL AND WIPER SYSTEM
723.7231.523.005.01	SERVICE BASIC ELECTRICAL SYSTEM

ANNEX:

H.3 COMPETENCY STANDARD DEVELOPMENT TEAM

STVET Project

No.	Name and Surname	Organization/Company	Job Expert
1.	Mr Phouang PHOUTHAVONG	STVET Project	NC
2.	Mr Soulikone PHONAMAT	STVET Project	NC
3.	Mr Stephan GIEBEL	STVET Project	IC

Resource Person / Methodologist

4.	Mr Bounsuan NAXIENGGHAM	Vocational Education Development Center	Mech. M&R
----	-------------------------	-----------------------------------------	-----------

Resource Persons / Company & Industry

5.	Mr Somdeth LAKHONVONG	TNK Mitsubishi Lao Trading Co. Vientiane	Auto
6.	Mr Boualoy SIRIPANYA	Lao Toyota Service Co LTD. Vientiane	Auto
7.	Mr Vannakhone THAMOUNTHA	KOLAO	Motorbike

Resource Persons / Public & Private TVET Institutions

8.	Mr. Bounlong RATSAVONG	Vocational Training School Savannakhet	Motorbike
9.	Mr Seesomseun YARTSADAHAK	Lao-German Technical School Vientiane	Agro-Mach.
10.	Mr Phouthasone KHAMPHANH	Vocational Training School Luang Prabang	Auto
11.	Mr Bontong XAIYAVONG	Vocational Education Development Center	Auto
12.	Mr Xenglor YONGNOU	Lao-Korea Training Center	Auto
13.	Mr Bountiew VANMANEVONG	Vientiane Professional Development College	Agro-Mach.
14.	Mr Khamsing CHANTHAVONGSA	Lao-German Technical School Vientiane	Welding
15.	Mr Sounthone NAMPANYA	Lao-German Technical School Vientiane	Welding
16.	Mr Vandy SISAVATH	Technical College Pakpasak Vientiane	Welding

