







COMPETENCY STANDARD

SMALL ENGINE MECHANIC LEVEL-I

METAL AND ENGINEERING SECTOR



In collaboration with









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Foreword

UN High Commissioner for Refugees (UNHCR), in collaboration with International Organization for Migration (IOM), BRAC, Center for Natural Resource Studies (CNRS), and NGO Forum for Public Health, is implementing a skills development project as part of a joint Initiative by International Labour Organization (ILO), UNHCR and BRAC with financial support from Global Affairs Canada (GAC) in the refugee camps of Cox's Bazar and on Bhasan Char.

The project has a target to reach a total of 8,000 refugee youth (18-24) participants for accredited vocational skills training which will be selected across the camps considering the demand of the refugee youths and labour market needs of Rakhine state of Myanmar so that the acquired skills can be utilised after their repatriation. To assess the skills needs of the refugee youths, UNHCR, in collaboration with UCEP Bangladesh, a national pioneer organisation in the vocational skills sector in Bangladesh, commissioned a Skills Needs Assessment in all refugee camps in Cox's Bazar and on Bhasan Char. In alignment with the Skills Needs Assessment findings and commitment, the project developed Competency Standards by adopting Myanmar National Qualification Framework (MNQF) or ASEAN Qualification Reference Framework (AQRF).

Following the requirement of the Myanmar National Qualification Framework (MNQF) or ASEAN Qualification Framework (AQRF), analysing the context of the camps, compatible aptitude and utilisation opportunities for the refugee youth and their educational qualifications, the pool of TVET experts of UCEP Bangladesh has developed course outline of the following ten occupations. Consequently, those ten course outlines have been translated into Competency Standards.

- 1. Sewing Machine Operation
- 2. Community Health Worker
- 3. Concreter
- 4. Small Engine Mechanic
- Caregiving
- 6. Solar (PV) System Installation and Maintenance
- 7. Electrician (Building)
- 8. Plumbing
- 9. Agricultural Crops Production
- 10. Bakery and Pastry Staff

The following Competency Standard for **Small Engine Mechanic Level-I** is adapted from the "National Occupational Competency Standards - Small Engine Mechanic Level-I –Metal and Engineering Sector" developed by the National Skills Standards Authority (NSSA) of the Myanmar. Competency standards are benchmarks defining the skills, knowledge and attributes people need to perform a work role.

Qualification Framework Description (Certification System)

To attain the Small Engine Mechanic Level-I, the candidate must demonstrate competence through assessment covering all the units listed in Section 1. Successful candidates shall be awarded a Certificate of Participation issued jointly by UNHCR and ILO. The qualification of Small Engine Mechanic Level-I may be attained through the accumulation of Certificates of Competency (COCs) in the following areas:

- 1. Use hand tools and workshop equipment
- 2. Service and repair small engines
- 3. Repair tyres and punctures of small machines

Successful candidates shall be awarded a Certificate of Participation. Accumulating and submitting all COCs acquired for the relevant units of competency comprising a qualification, an individual shall be issued a Certificate of Participation jointly by UNHCR and ILO to demonstrate the accumulated competencies. The Certificate of Participation may help the person attain the Recognition of Prior Learning (RPL) test in the country of origin or any other third country. Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.

General Guidelines for the Assessment

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desirable skills and attitudes of Small Engine Mechanic	
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Course Structure

Small Engine Mechanic Level-I

Code	Code Unit of Competencies			Total Guided Hours		
		Th.	Pr.	Total		
Basic Competenci	es (1 UoCs Required)					
ISEC-ME-SE-01-B Receive and respond to workplace communication		06	14	20		
Total in Basic Com	petencies	06	14	20		
Industry Competer	ncies (2 UoCs Required)					
ISEC-ME-SE-01-I	Follow the safety and health procedure	04	16	20		
ISEC-ME-SE-02-I	Practice house keeping	08	22	30		
Total in Industry C	Total in Industry Competencies 12 38 50					
Technical Compete	encies (3 UoCs Required)					
ISEC-ME-SE-01-T	Use hand tools and workshop equipment	12	48	60		
ISEC-ME-SE-02-T	Service and repair small engines	30	125	155		
ISEC-ME-SE-03-T	Repair tyres and punctures of small	15	60	75		
	machines					
Total in Technical Competencies			233	290		
Total Nominal Hours 75 285 36				360		

BASIC COMPETENCIES

UNIT OF COMPETENCY Receive and respond to workplace communication

UNIT DESCRIPTOR

This unit relates to competency required to receive, respond and act on verbal and written communication.

NOMINAL DURATION 20 Hours

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

Variable	Range (May include but not limited to)	
1. Written notices and	1.1. Handwritten and printed material	
instructions	1.2. Internal memos	
	1.3. External communications	
	1.4. Briefing notes	
	1.5. General correspondence	
2. Organizational	2.1. Information documentation procedures	
Guidelines	2.2. Company policies and procedures	
	2.3. Organization manuals	
	2.4. Service manual	

Underpinning Knowledge (To be used as	Underpinning Skills (to be used as job in
training content in the information sheet of CBLM)	the job sheet of CBLM)
 Knowledge of organizational policies/guidelines regarding processing internal/external information Ethical work practices in handling communications Communication process 	 Obtain work instructions 1.1. Obtain, interpret and understand the work instructions. Carry out routine tasks in accordance with Instructions 1.1 Establish safe and effective work processes to avoid or minimize reworking avoid wastage Communicate effectively in the workplace Communicate in simple language to enable confirmation of work requirements Work with others and in a team Work with others and in a team using co-operative approaches to optimise satisfaction and productivity
Required major tools and equipment for the 1. Pens 2. Note pads	ne UoC:
2. 11010 pado	

INDUSTRY COMPETENCIES

UNIT OF COMPETENCY : Follow the safety and health procedure

UNIT DESCRIPTOR : This unit relates to compliance with regulatory and

organizational requirements for occupational health and

safety.

NOMINAL DURATION : 20 Hours

ELEMENT	PERFORMANCE CRITERIA
ELEIVIEN	
	Italicized terms are elaborated in the Range of
4 = 11 ()	Variables
Follow safe work practices	 1.1 Safety regulations and workplace safety and hazard control practices and procedures based on organization procedures are followed. 1.2 Hazards/ risk in the workplace and their corresponding indicators are identified to minimize or eliminate risk to co-workers, workplace and environment in accordance with organization procedures 1.3 Contingency measures during the events of workplace accidents, fire and other emergencies are complied with in accordance with organization procedures
2. Identify hazards and risks	2.1 OHS issues or concerns and identified workplace hazards are reported to designated personnel in accordance with workplace requirements and relevant OHS legislation
3. Follow emergency procedures	 3.1 Follow consistently Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed. 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies 3.3 Personal Protective Equipment (PPE) are correctly used in accordance with organization's OHS procedures and. 3.4 Appropriate assistance provided in the event of a workplace emergency in accordance with established organizational protocols

Variable	Range (May include but not limited to)		
1. Safety regulations	1.1. Waste Disposable		
	1.2.	Electrical and Fire Safety precaution	
	1.3.	Professional safety Signs	
2. Hazards	2.1.	Physical hazards	
	2.2.	Ergonomic hazards	
	2.3.	Electrical hazards	
	2.4.	Falling and tripping hazards	
3. Risks	3.1.	Precaution hazards (use sharp tools)	
	3.2.	Lifeline	
	3.3.	Barricade	
	3.4. PPE (Masks, Gloves, Boots, Apron, Hat, Eye goggle		
	3.5.	Signs	
	3.6.	Mask	
4. Personal Protective	4.1.	Safety belt	
Equipment (PPE)	4.2.	Helmet	
	4.3.	Head protection	
	4.4.	Glasses	
	4.5.	Mask	
	4.6.	Gloves, boots, etc.	

Underpinning Knowledge (To be used as training content in the information sheet of CBLM)	Underpinning Skills (to be used as job in the job sheet of CBLM)
 Safety signs and symbols and Personal Protective Equipment (PPE) Emergency procedures Various site hazards Safety and health procedures Accidents which may happen Correct use of PPE 	 Mechanical aptitude and manual dexterity to use tools. Ability to recognise faults and defects with tools and equipment, and to understand workshop reporting procedures Reporting/recording accidents and potential hazards

Required major tools and equipment for the UoC:

- Tools, equipment, and outfits appropriate in applying safety measures
 Appropriate PPE

UNIT OF COMPETENCY : PRACTICE HOUSE KEEPING

UNIT DESCRIPTOR : This unit covers the knowledge, skills and attitudes

required to apply the basic housekeeping procedures.

NOMINAL DURATION : 30 Hours

EL	EMENT	PER	FORMANCE CRITERIA
		Italicized terms are elaborated in the Range of	
		Varia	
1.	Sort and remove Unnecessary items	1.1	Reusable, recyclable materials are sorted in accordance with company/workplace procedures.
		1.2	Unnecessary items are removed and
			disposed of in accordance with company or workplace procedures.
2.	Arrange items	2.1	Items are arranged in accordance with company/office housekeeping procedures
		2.2	Work area is arranged according to job requirements.
		2.3	Activities are prioritized based on instructions.
		2.4	Items are provided with clear and visible identification marks based on procedures.
		2.5	Safety equipment and evacuation passages are kept clear and accessible
	Maintain wall and tools and	0.4	based on instructions
3.	Maintain work area, tools, and equipment	3.1	Cleanliness and orderliness of work area is maintained in accordance with
			company/workplace procedures.
		3.2	Tools and equipment are cleaned in
			accordance with manufacturer's instructions/manual.
		3.3	Minor repairs of tools and equipment are
		3.3	performed in accordance with
			manufacturer's instruction/manual.
		3.4	Defective tools and equipment are
			reported to immediate supervisor
4.	Follow work process and	4.1	Materials for common use are maintained
	procedures		in designated area based on procedures.
		4.2	Work is performed according to standard
			work procedures.
		4.3	Abnormal incidents are reported to
_	D (immediate supervisor
5.	Perform work spontaneously	5.1	Work is performed as per instruction
		5.2	Organizational <i>decorum</i> is followed and complied with

Competency Standard: Small Engine Mechanic Level-I

5.3	Work is performed in accordance with
	occupational health and safety (OHS)
	requirements

Variable	Range (May include but not limited to)
1. Unnecessary items	1.1 Non-recyclable materials
	1.2 Unserviceable tools and equipment
	1.3 Pictures, posters and other materials not related to work
	activity
	1.4 Waste materials
2. Identification	2.1 Labels
marks	2.2 Tags
	2.3 Colour coding
3. Decorum	3.1 Organizational rules and regulations
	3.2 Proper work clothes
	3.3 Behaviour
4. Minor repair	4.1 Application of lubricants
·	4.2 Sharpening of tools
	4.3 Tightening of nuts, bolts and screws

Underpinning Knowledge (To be used as training content in the information sheet of CBLM)	Underpinning Skills (to be used as job in the job sheet of CBLM)
 Principles of 5S Work process and procedures Safety signs and symbols General OHS principles Environmental requirements relevant to work Accident/Hazard reporting procedures 	 Ability to recognize effective tools, materials, and outfit Ready skills required to read labels, manuals, and other basic safety information

- Required major tools and equipment for the UoC:

 1. Tools, equipment, and outfits appropriate for the unit of competency
 2. Appropriate PPE

TECHNICAL COMPETENCIES

UNIT OF COMPETENCY: Use Hand Tools and Workshop Equipment

UNIT DESCRIPTOR : This unit relates to competency required to use hand-tools

and workshop equipment safely, correctly, and efficiently.

NOMINAL DURATION : 60 Hours

ELE	MENT		FORMANCE CRITERIA ized terms are elaborated in the Range of bles
p	dentify the name, type and purpose of hand tools and workshop equipment	1.1. 1.2.	Name and type of <i>tool</i> or piece of equipment is identified Specific <i>Occupational Health and Safety</i> (OHS) issues related to tool and equipment are identified
	Demonstrate correct and safe use of tools and equipment		Correct use of tools and equipment is explained and demonstrated. Safe use of tools and equipment is explained and demonstrated. Potential sources of support and information on unfamiliar or new tools and equipment are identified
e	Clean and store tools and equipment, and report any damage or defects to supervisor	3.1.	Tools are cleaned and stored according to (<i>manuals</i>) manufacturer's specifications and supervisors' requirements Malfunctions, faults, wear or damage to tools are reported to the supervision according to <i>workplace</i> requirements

Variable	Range (May include but not limited to)
1. Tools	 1.1 Hand tools commonly used in general engine-repair workshops to remove and replace fastenings and component parts, i.e., sockets, spanners, screwdrivers, allen (L-key or hexagonal key), and torque wrenches. 1.2 Associated tools used in basic repair procedures – pliers, wrenches, hammers, chisels, hacksaws, files. 1.3 Grease guns/oil cans, containers for waste fluids and parts 1.4 Basic measuring equipment - tape measure/ruler, feeler gauges, spark plug cleaners
2. Workplace	2.1 Building designated as workshop at premises of workplace/employer.2.2 Outside area at premises of workplace/employer.
3. Manuals and Technical Information	3.1 Tool manufacturer/supplier technical data sheets and workshop manuals.3.2 Support and technical advice from senior qualified work colleagues and supervisor.
4. OHS requirements	 4.1 OHS practice should be in line with any relevant regulation, and/or codes of best practice and/or workplace Health and Safety policy. 4.1.1 Risk assessments to identify best safe practice in relation to using hand tools and equipment. 4.1.2 Use of personal protective equipment (PPE) where available in line with workplace practice.

Underpinning Knowledge (To be used as training content in the information sheet of CBLM)	Underpinning Skills (to be used as job in the job sheet of CBLM)
 OHS regulations/requirements, equipment, material and personal safety requirements Types, characteristics and operations of single cylinder petrol and diesel engines. Types, characteristics and functions of tools used in maintenance of internal combustion engines. Safe practice with regard to the use and control of hazardous substances. Safe practice with regard to environmentally sound disposal of waste fuels and oils. 	 Perform basic calculations required to finish the tasks Mechanical aptitude and manual dexterity to use tools. Ability to recognise faults and defects with tools and equipment, and to understand workshop reporting procedures
Description of the state and accordance at fault	

- Required major tools and equipment for the UoC:

 1. Tools, equipment, and outfits appropriate for the unit of competency

 2. Appropriate PPE

UNIT OF COMPETENCY : Service and Repair Small Engines

UNIT DESCRIPTOR : This unit relates to competency required to undertake routine scheduled servicing and basic repair of small

routine scheduled servicing and basic repair of small *internal combustion engines* under supervision.

NOMINAL DURATION : 155 Hours

ELEMENT	PERFORMANCE CRITERIA
	Italicized terms are elaborated in the Range of Variables
Identify type of engine and related issues	 1.1. Type of engine is identified 1.2. Specific Occupational Health and Safety (OHS) issues related to engine are identified 1.3. Any assistance needed to safely move engine and associated parts is identified 1.4. Safe procedures for working on engine are identified
Prepare for scheduled servicing and/or basic repair	 2.1. Prepare clean and safe work area to give good access to engine as required 2.2. Identify necessary work, plan schedule, discuss and confirm with supervisor 2.3. Identify <i>tools</i>, <i>parts</i> and other materials needed for planned work 2.4. Identify potential sources of technical support and information for planned work
Carry out scheduled servicing and/or basic repair	 3.1. Requirement for Personal Protective Equipment according to workplace OHS practice is understood 3.2. Lubrication, greasing, and other basic servicing of engine is carried out according to supervisor's instructions 3.3. Routine adjustments and repairs are made to engine according to supervisor's instructions 3.4. Work is conducted according to workplace OHS practice and completed to supervisor's/clients satisfaction
Complete scheduled servicing and/or basic repair	 4.1. Tools cleaned and stored according to workplace requirements 4.2. Waste from maintenance activities is collected, stored and disposed of or recycled according to workplace requirements 4.3. Work area is cleaned and maintained according to workplace OHS requirements 4.4. Malfunctions, faults, wear or damage to tools are reported to the supervisor according to workplace requirements

Va	Variable Range (May include but not limited to)		
1.	Internal combustion engines	 1.1. Small single cylinder petrol engines as commonly fitted to motorcycles and small power tools up to nominal 150cc., air cooled (does not include larger multi-cylinder engines) 1.2. Single cylinder diesel engines as commonly fitted to shallow machine, power tiller and small transport threewheeler (does not include larger multi-cylinder engines) 	
2.	Types of engines	2.1. Four-stroke petrol engine 2.2. Four-stroke diesel engine	
3.	Associated parts	3.1. Gear box 3.2. Air filter 3.3. Fuel filter 3.4. Oil filter 3.5. Dynamo 3.6. Starter motor 3.7. Fuel pump 3.8. Battery	
4.	Workplace	4.1. Building designated as workshop at premises of workplace/employer4.2. Outside area at premises of workplace/employer	
5.	Procedures	5.1. Work is to be limited to basic servicing and routine maintenance – oil change, filters, cleaning, lubrication. Minimal dismantling of machine. No work on any safety critical components	
6.	Tools	6.1. Hand tools6.2. Jacks, axle stands and supports6.3. Grease gun/oil can6.4. Containers for waste fluids6.5. Tape measure/ruler	
7.	Parts	7.1. Oils and greases7.2. Filters7.3. Worn/damaged external parts that can be replaced with minimal dismantling of engine.7.4. Bolts, nuts, and fasteners	

Underpinning Knowledge (To be used as training content in the information sheet of CBLM)	Underpinning Skills (to be used as job in the job sheet of CBLM)	
 OHS regulations/requirements, equipment, material and personal safety requirements Types, characteristics and functions of tools used in maintenance of internal combustion engines. Safe practice with regard to the use and control of hazardous substances. Safe practice with regard to environmentally sound disposal of waste fuels and oils 	 Basic concept of internal combustion engines and the parts Perform basic calculations required to finish the tasks Mechanical aptitude and manual dexterity to use tools. Ability to recognise faults and defects with tools and equipment, and to understand workshop reporting procedures 	
Required major tools and equipment for the UoC:		
 Tools, equipment, and outfits appropriate for the unit of competency 		

2. Appropriate PPE

UNIT OF COMPETENCY : Remove, inspect, repair and refit light vehicle tyres

and tubes

UNIT DESCRIPTOR : This unit relates to competency required to remove,

inspect, repair and fit pneumatic tyres on *small*

machines.

NOMINAL DURATION : 75 Hours

ELEMENT	PERFORMANCE CRITERIA Italicized terms are elaborated in the Range of Variables
Prepare to remove, inspect, repair and refit light vehicle tyres and tubes	1.1 Job requirements are determined from workplace instructions
tyres and tubes	1.2 Tyre and tube removal, inspection, repair and refitting information is sourced and interpreted
	1.3 Hazards associated with the work are identified and risks are managed
	1.4 Tools , equipment and materials are selected and checked for serviceability
Remove and inspect tyres, tubes and wheels	2.1 Tyres and tubes are removed from wheels according to manufacturer specifications , workplace procedures, and safety and environmental requirements
	2.2 Tyres, tubes and wheels are inspected according to manufacturer specifications and workplace procedures
	2.3 Inspection findings and recommendations for necessary repairs are reported according to workplace procedures
Repair and refit tyres and tubes	3.1 Repair options are analysed and those most appropriate to the circumstances are selected
	3.2 Tyres and tubes are repaired according to manufacturer specifications, workplace procedures, and safety and environmental requirements
	3.3 Tyre is mounted to wheel according to manufacturer specifications and workplace procedures, and without causing damage to components or systems
	3.4 Assembled wheel and tyre are checked for serviceability and correct assembly, and inflated according to manufacturer specifications and workplace procedures
4. Complete work processes	4.1 Final inspection is made to ensure work is to workplace expectations and wheel assembly is presented ready for use

4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected
4.3 Tools and equipment are checked and stored according to workplace procedures
4.4 Workplace documentation is processed according to workplace procedures

Vai	riable	Range (May include but not limited to)
1.	Tyres	1.1. Tube
		1.2. Tubeless
		1.3. Radial
		1.4. Directional
2.	Workplace	2.1. Building designated as workshop at premises of
		workplace/employer
		2.2. Outside area at premises of workplace/employer
3.	Procedures	3.1. Visual/aural/functional identification of defects
		3.2. Repair procedures in accordance with authorization and
		supervisor's instructions
4.	Tools	4.1. Hand tools
		4.2. Jacks, axle stands and supports
		4.3. Tyre levers
		4.4. Valve key
		4.5. Compressor
		4.6. Tyre inflator, pressure gauge
5.	Parts	5.1. Replacement tyres
		5.2. Replacement tubes
		5.3. Tube/tubeless repair kits
		5.4. Rims or wheels
		5.5. Replacement valves
	NA	5.6. Axle bolts, wheel nuts, studs
6.	Manufacturer	6.1. Support and technical advice from senior qualified work
	specifications	colleagues and supervisor 6.2. Installation data supplied with replacement parts
		6.3. Manufacturer/supplier technical data sheets and workshop
		manuals
7.	Safety and	7.1. Work health and safety (WHS) and occupational health
	environmental	and safety (OHS) requirements, including procedures for:
	requirements	7.1.1. Deflating and inflating light vehicle tyres
		7.1.2. Manual handling light vehicle wheel assemblies
		7.2. Environmental requirements, including procedures for
		trapping and disposing of tyre material produced during
		repair procedures.

Underpinning Knowledge (To be used as training content in the information sheet of CBLM)	Underpinning Skills (to be used as job in the job sheet of CBLM)
 OHS regulations/requirements, equipment, material and personal safety requirements Understanding of dangers of working with tyre changing equipment Types, characteristics and functions of tyres fitted to small machines. Types, characteristics and functions of tools used in tyre fitting practice. Understanding of tyre sidewall markings and directional specification when fitting tyres. 	 Numeracy skills Perform basic calculations required to finish the tasks Use of tools Mechanical aptitude and manual dexterity to use tools. Ability to recognise faults and defects with tools and equipment, and to understand workshop reporting procedures

Safe practice with regard to the use of compressed air systems and maximum safe inflation pressures of tyres.
 Safe practice with regard to environmentally sound disposal scrap tyres and tubes.

Required major tools and equipment for the UoC:

- 1. Tools, equipment, and outfits appropriate for the unit of competency
- 2. Appropriate PPE