

Vocational Skills Training

Short Course Training Module

Sector: Service

Sub-Sector: Automobile

Course Title: Assistant Automotive Mechanic

Level: Basic

October 2020

Version I

Training Duration: 492 hours

Part I: 102 hours	Part II: 390 hours
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Trainee Entry Requirement: Must be at least 15years old

Job Opportunities/Indicative Jobs: A person who has completed this training can perform the task of as an assistant Motorbike Service Mechanic.

Summary of Course Competencies:

1. Acquire basic literacy and numeracy
2. Apply work life skills
3. Human Rights
4. Entrepreneurship
5. Peace and development
6. General Auto Mechanic
7. Engine Fitter
8. Transmission Mechanic
9. Auto Service Mechanic
10. Auto Electrician

Part I: Non- Core Technical Competency:

Module	Unit	Training Detail	Training Objective	Hour
1.Acquire basic literacy and numeracy	1.1.Read, write and communicate effectively using basic English language required course skills	1.1.1. Read and write in English to demonstrate	1.1.1.1 Recognize the English alphabet 1.1.1.2 Pronounce consonant and vowel sounds 1.1.1.3 Pronounce simple words 1.1.1.4 Construct simple sentences	31
		1.1.2. Basic oral communication in English language	1.1.2.1. Practice speaking in the classroom	
	1.2.Perform basic calculations and measurements essential in the course	1.2.1. Basic mathematics as required	1.2.1.1. Identify cardinal and ordinal numbers 1.2.1.2. Perform basic numerical operations- addition, subtraction, multiplication and division	37
		1.2.2. Measuring instrument(s)	1.2.2.1. Perform required measurement using scale, measuring tape, Vernier caliper and other required tools 1.2.2.1. Convert measurement units among- Inch, feet, centimeter, millimeter, meter, Kilometer, Yard.	
2.Apply work life skills	2.1.Practice industrial relations	2.1.1. Basic principles of workplace relations	2.1.1.1. Adopt workplace rules and regulations 2.1.1.2.Perform workplace duty and responsibility 2.1.1.3. Maintain employer friendly behavior in the workplace	8
	2.2.Practice workplace gender sensitivity	2.2.1. Basic gender principles	2.2.1.1. Understand workplace gender dynamics 2.2.1.2. Apply basic gender principles	
	2.3.Develop career path	2.3.1. Career plan	2.3.1.1. Identify suitable and available work opportunities after training 2.3.1.2. Identify opportunities for further and higher training	
	2.4.Gender Sensitivity	2.4.1. Gender and Sex	2.4.1.1. Understand the concept of gender and sex 2.4.1.2. Differentiate between gender and sex 2.4.1.3. Adopt gender equity and equality	

3. Human Rights	3.1 Human Rights	3.1.1. Concept of human rights	3.1.1.1 State human rights by defining the term 3.1.1.2 Illustrate the characteristics of human rights 3.1.1.3. Differentiate rights and responsibilities 3.1.1.4 Demonstrate how rights are not realized by all	5
	3.2 Universal Declaration of Human Rights	3.2.1. Universal Declaration	3.2.1.1 Understand of the UDHR history 3.2.1.2 Examine each of the rights as articulated in the UDHR	
		3.2.1. State Obligation	3.2.1.1. Identify the role of the state in upholding human rights 3.2.1.2. Identify gaps in access to justice	
	3.3 Gender and Human Rights	3.3.1 Cultural assumptions	3.3.1.1. Recognize cultural assumptions about the role of women, girls and the boy-child in South Sudan	
		3.3.2. Gender and Gender Based Violence	3.3.2.1. Recognize discrimination faced by the women, girls and the boy child 3.3.2.2. Understand the concept of gender-based violence 3.3.2.3. Understand the role of citizens in upholding gender equality 3.3.2.4. Understand the role of citizens in preventing gender-based violence	
4. Entrepreneurship	4.1 Business and Enterprises	4.1.1. Concept of business and entrepreneurship	4.1.1 Define business and entrepreneurship	18
		4.1.2. Types of business	4.1.2 Identify types of business- Sole, Partnership, shareholder, Cooperative and its characteristics	
		4.1.3. Function of Entrepreneur	4.1.3 Adopt functions of entrepreneur	
	4.2 Start and Operate the Business	4.2.1 Business Plan	4.2.1.1 Prepare business plan	
		4.2.2 Legal requirements and registration	4.2.2.1 Recognize legal existing legal provision to establish and operate business	
			4.2.2.2 Perform business and individual tax clearance	
		4.2.3 Capital adequacy	4.2.3.1 Identify sources of business start-up including operation cost- loans from BFIs and cooperative, Individual borrowing, Grant, Subsidy, Reserve, family income	
		4.2.4 Book-keeping	4.2.4.1 Familiarize with basic accounting and financial terminology	
			4.2.4.2 Maintain ledger	

			4.2.4.3 Maintain cash book	
		4.2.5 Sales and inventory management	4.2.5.1 Maintain daily sales log	
			4.2.5.2 Maintain raw material and final product inventory in the log sheet	
	4.3 Market	4.3.1 Concept of Market	4.3.1.1 Understand the concept of market	
			4.3.1.2 Know the important of market for sustainable business operation	
			4.3.1.3 Identify potential buyers and sellers	
		4.3.2 Marketing Strategy and Segmentation	4.3.2.1 Identify competitors	
			4.3.2.2 Identify competitive advantage	
		4.3.3 Customer Care	4.3.2.3 Identify comparative advantage	
			4.3.2.4 Perform competitive pricing	
4.3.3.1 Perform customer satisfaction survey				
	4.3.3.2 Perform post sales/service customer retention			
5.Peace and Development	5.1 Peace and Conflict	5.1.1 Meaning of Conflict and peace	5.1.1.1 Understand Peace and Conflict	3
		5.1.2 Factor affecting conflict and Peace	5.1.2.1 Adopt factor to be considered for post conflict development and social well beings	
		5.1.3 Sources of Conflict	5.1.3.1 Apply to remedy for sources of conflict	
		5.1.4 Conflict Prevention	5.1.4.1 Adopt conflict prevention measures for peace and development to enhance positive socioeconomic changes	
			5.1.4.2 Play cartelistic role for community peace and development with socioeconomic empowerment	
Total				102

Part II: Core Technical Competency:

Module	Unit	Training Detail	Training Objective	Hrs
6. General Auto Mechanic	6.1. Safety Measure and Bench work	6.1.1. Select personal protective equipment (PPE) as required 6.1.2. Wear required safety devices 6.1.3. Inspect and maintain safe work area 6.1.4. Follow established procedures for the use and care of tools 6.1.5. Follow established procedures for the use and care of equipment's 6.1.6. Follow established procedures for the use and care of power operated equipment 6.1.7. Follow established procedures for the use and care of safety equipment 6.1.8. Enlist safety signs/notice.	1. Orient with safety rules 2. Handle tools and equipment 3. Perform bench work activities	20

Module	Unit	Training Detail	Training Objective	Hrs
		6.1.15. Enlist preparation for emergency 6.1.16. response. 6.1.17. Identify basic first-aid procedures 6.1.18. Lift objects and materials in accordance with established procedures		
	6.2. Suspension System	6.2.1. Replace suspension bush/pin 6.2.2. Change suspension/ control arm 6.2.3. Replace coil spring 6.2.4. Change strut 6.2.5. Replace shock absorbers 6.2.6. Replace spring hanger/shackle pin 6.2.7. Replace leaf spring 6.2.8. Replace torsion bar 6.2.9. Replace stabilizer bar	1. Be familiar with suspension /chassis system 2. Repair suspension /chassis system	25
	6.3. Brake	6.3.1. Change brake shoe lining. 6.3.2. Change master cylinder kit. 6.3.3. Change wheel cylinder kit. 6.3.4. Replace brake shoe / disc pad. 6.3.5. Change dual valve kit. 6.3.6. Change brake booster. 6.3.7. Change air governor kit of air brake. 6.3.8. Adjust brake. 6.3.9. Bleed hydraulic brake. 6.3.10. Remove and install parking brake lever.	1. Be familiar brake system 2. Maintain brake system	40

Module	Unit	Training Detail	Training Objective	Hrs
		6.3.11. Inspect and adjust parking brake. 6.3.12. Remove and install parking brake cable. Service pneumatic brake. 6.3.13. Service/ repair/ test vacuum pump.		
	6.4. Steering	6.4.1. Change ties rod end/ball joints. 6.4.2. Change steering universal cross. 6.4.3. Remove/ replace steering gearbox. 6.4.4. Repair steering gearbox. 6.4.5. Change steering oil. 6.4.6. Change kingpin. 6.4.7. Change steering wheel/bush. 6.4.8. Replace rack bush. 6.4.9. Replace knuckle oil seal. 6.4.10. Repair/ change hydraulic steering kit. 6.4.11. Repair front axle.	1. Be familiar with steering system 2. Maintain steering system	30
	6.5. Wheels and Tyre	6.5.1. Rotate tyre. 6.5.2. Change tubeless tyres. 6.5.3. Repair tube puncture (flat tyre). 6.5.4. Repair tubeless tyre puncture. 6.5.5. Change rim disc plate. 6.5.6. Balance wheel	1. Be familiar with maintaining and repairing of wheel and tyre 2. Maintain and repair wheel and tyre	15

Module	Unit	Training Detail	Training Objective	Hrs
7. Engine Fitter	7.1. Overhauling	7.1.1. Replace turbo charger/super charger. 7.1.2. Replace manifolds. 7.1.3. Replace/assemble cylinder head. 7.1.4. Replace piston rings. 7.1.5. Replace connecting rod bearings. 7.1.6. Replace crank oil seal. 7.1.7. Replace main bearings. 7.1.8. Install piston and connecting rod. 7.1.9. Replace crank pulley and vibration damper. 7.1.10. Replace camshaft tappet. 7.1.11. Remove/replace carburetors. 7.1.12. Replace oil pump. 7.1.13. Replace flywheel housing. 7.1.14. Replace fuel injection pump (for CI engine). 7.1.15. Change gasket set. 7.1.16. Set timing gear. 7.1.17. Set/ adjust tappet /valve clearance. 7.1.18. Service/ repair spark plug 7.1.19. Tune engine and test emission 7.1.20. Inspect / change glow plug 7.1.21. Perform emission testing using smoke analyzer 7.1.22. Adjust injection timing (rotary pump).	1. Be familiar with engine overhauling 2. Overhaul engine	75

Module	Unit	Training Detail	Training Objective	Hrs
		7.1.23. Adjust idle speed and maximum speed. 7.1.24. Check compression pressure. 7.1.25. Diagnose engine problem.		
	7.2. Cooling and Lubrication System	7.2.1. Change thermostat. 7.2.2. Seal leakage in cooling system. 7.2.3. Repair/replace water pump. 7.2.4. Repair/replace radiator. 7.2.5. Replace oil cooler. 7.2.6. Replace oil pump.	1. Be familiar with cooling system 2. Maintain cooling system	15
	7.3. Fuel System with MPFI	7.3.1. Replace injector nozzle. 7.3.2. Set injector pressure. 7.3.3. Remove/replace fuel tank. 7.3.4. Remove/replace EGR valve. 7.3.5. Remove/replace Catalytic Converter. 7.3.6. Remove/replace fuel feed pump. 7.3.7. Overhaul carburetor. 7.3.8. Set diesel fuel injection pump timing. 7.3.9. Bleed fuel system. 7.3.10. Replace fuel level sending unit. 7.3.11. Read memory switch mode (Blink code method) 7.3.12. Trouble shoot using MPFI diagnostic tester.	1. Be familiar with fuel system including MPFI 2. Maintain fuel system with MPFI	30
	8.1. Clutch and Gearbox	8.1.1. Remove/replace clutch pressure/fiction plate.	1. Be familiar with transmission system 2. Maintain transmission system	50

Module	Unit	Training Detail	Training Objective	Hrs
8. Transmission Mechanic		8.1.2. Remove/replace propeller shaft. 8.1.3. Remove/replace universal joints. 8.1.4. Remove/replace transmission mount. 8.1.5. Replace Synchronizing unit. 8.1.6. Replace counter/main/top shaft. 8.1.7. Repair/change gear/shifting lever/ shaft. 8.1.8. Remove/replace speedometer drive gear/cable. 8.1.9. Assemble gearbox. 8.1.10. Change transmission gear oil.		
	8.2. Differential & Transaxle	8.2.1. Remove/replace axle seal/bearings. 8.2.2. Replace crown wheel and pinion. 8.2.3. Replace bevel kit. 8.2.4. Overhaul/rebuild differentials. 8.2.5. Remove/replace transaxle assembly. 8.2.6. Repair/replace front wheel drive axle assembly. 8.2.7. Overhaul four-wheel drive (4WD) transmission.	<ul style="list-style-type: none"> • Be familiar with differential & transaxle • Maintain differential & transaxle 	
9. Auto Service Mechanic	9.1. Servicing	9.1.1. Wash Vehicle. 9.1.2. Grease with grease gun. 9.1.3. Lubricate with oilcan.	<ul style="list-style-type: none"> • Identify serviceable parts • Service vehicle 	50

Module	Unit	Training Detail	Training Objective	Hrs
		9.1.4. Change fuel filter. 9.1.5. Change oil filter. 9.1.6. Change engine oil 9.1.7. Change Coolant level. 9.1.8. Clean/change air filter. 9.1.9. Drain off condenses water from compressed air. 9.1.10. Change thermostats. 9.1.11. Grease hub. 9.1.12. Adjust brake. 9.1.13. Adjust Clutch. 9.1.14. Adjust crown wheel thrust pad. 9.1.15. Adjust wheel alignment. 9.1.16. Service battery. 9.1.17. Adjust fan belts. 9.1.18. Tighten underbody nuts and bolts. 9.1.19. Adjust tappet/valve clearance. 9.1.20. Test fuel injector. 9.1.21. Adjust RPM. 9.1.22. Change differential oil. 9.1.23. Set/ adjust air pressure. 9.1.24. Add/change steering oil. 9.1.25. Adjust wheel hub play.		
10. Auto Electrician	10.1.Auto Electric	10.1.1. Charge battery. 10.1.2. Replace battery. 10.1.3. Replace ignition switch. 10.1.4. Repair/replace distributor. 10.1.5. Set ignition timing. 10.1.6. Repair/replace alternator. 10.1.7. Repair starter motor.	1. Be familiar with auto electrical system 2. Repair and replace electrical system	40

Module	Unit	Training Detail	Training Objective	Hrs
		10.1.8. Replace/change lights/bulbs. 10.1.9. Change relay/switch in electrical system. 10.1.10. Repair wiper. 10.1.11. Troubleshoot electrical system. 10.1.12. Repair wiring. 10.1.13. Set head light beam 10.1.14. Service/ replace electrical accessories		
Total Hour				390

Tools and Equipment

1. Air compressor 2. Battery charger 3. Washing machine 4. Hydraulic lifter 5. Spray gun 6. Vacuum cleaner 7. Soldering iron 8. Spanner set 9. Ring set 10. Socket wrench 11. Screwdriver sets 12. Hammer 13. Pliers set 14. Multi-meter	15. Plug wrench 16. Impact driver 17. Filler gauge 18. Bench vice 19. Bench grinder 20. Drill machine and bits 21. Tyre lever 22. Valve puller 23. Lock pliers 24. Scissors 25. Wheel wrench 26. Jack 27. Ratchet	28. Drain plug wrench 29. Specialized puller set 30. Calliper 31. Torque wrench 32. Funnel 33. Wire brush 34. File set 35. Oil gun 36. Centre punch 37. Filter wrench 38. Chain puller 39. Oil cane 40. Pressure gauge
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Assessment shall be conducted as follows;

- i) Continuously by each unit or a combination of units covered and at the end of every module. Continuous assessment will be marked at 100% and will take 40% of the marks for the overall assessment.
- ii) At the end of the course. It will mark at 100% and will take 60% of the marks for the overall assessment

Qualification of Instructors

- Must a holder of Certificate/diploma from recognized TVET Institutions
- Must have undergone training on Training Methodology
- Must be physically and mentally fit
- Must have at least 2 years job/Industry experience