



*National Curriculum Level-2 in Agricultural Machinery Technology*



## **National Curriculum Level-2 in Agricultural Machinery Technology**

### **“Agricultural Machinery Helper”**



**National Vocational and Technical Training Commission (NAVTTTC),  
Government of Pakistan**



## *National Curriculum Level-2 in Agricultural Machinery Technology*



### **ACKNOWLEDGEMENTS**

National Vocational and Technical Training Commission (NAVTTTC) extends its gratitude and appreciation to representatives of business, industry, academia, government agencies, provincial TEVTAs, sector skill councils and trade associations who spared time and extended their expertise for the development of National Vocational Qualification for the trade of **Agricultural Machinery Technology**. This work would not have been possible without the technical support of the above personnel.

NAVTTTC initiated development of CBT&A based qualifications for 200 traditional / hi-tech trades under the Prime **Minister's Hunarmand Pakistan Program**, focusing on Development & Standardization of 200 Technical & Vocational Education & Training (TVET) Qualifications. NAVTTTC efforts have received full support from the Ministry of Federal Education and Professional Training which highly facilitated progress under this initiative.

It may not be out of place to mention here that all the experts of Industry, Academia and TVET experts of TEVTAs, BTEs and PVTC work diligently for making this qualification worthy and error free for which all credit goes to them. However, NAVTTTC accepts the responsibility of all the errors and omissions still prevailing in the Qualification document.

It is also noteworthy that development of Skill Standards is a dynamic and ongoing process, and the developed skill standards needs periodic review and updating owing to the constant technological advancements, development in scientific knowledge, and growing experience of implementation at the grass root level as well as the demand of industry. NAVTTTC will ensure to keep the qualifications abreast with the changing demands of both national and international job markets.

**Executive Director (NAVTTTC)**



## a) Table of Contents

a) Table of Contents .....	3
a) Definition/Description of training program (Agricultural Machinery Helper) .....	5
b) Purpose of the training program:.....	5
c) Overall objectives of training program: .....	6
d) Competencies to be gained after completion of course:.....	6
e) Possible available job opportunities, available immediately and later in the future: .....	7
f) Trainee entry level:.....	8
g) Minimum qualification of trainer: .....	8
h) Recommended trainer: trainee ratio .....	8
i) Medium of instruction i.e. language of instruction: .....	8
j) Duration of the course (Total time, Theory & Practical time): .....	9
k) Summary template-overview of the curriculum: .....	10
Module: 0716-MVS&A-2. Use different types of tools and equipment in the workshop .....	14



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>Module: 0716-MVS&amp;A-3.</b>	<b>Perform precision measurements on various components .....</b>	<b>18</b>
<b>Module: 0716-MVS&amp;A-4.</b>	<b>Use different type of fastening and locking devices in the workshop .....</b>	<b>22</b>
<b>Module: 0716-MVS&amp;A-5.</b>	<b>Perform basic fitting operations used in the workshop practices .....</b>	<b>25</b>
<b>Module: 0716-MVS&amp;A-6.</b>	<b>Carryout maintenance of tools and machines .....</b>	<b>28</b>
<b>Module: 0716-MVS&amp;A-7.</b>	<b>Identify the hydraulic and pneumatic components in agricultural machinery .....</b>	<b>33</b>
<b>Module: 0716-MVS&amp;A-8.</b>	<b>Perform Cutting of the job .....</b>	<b>36</b>
<b>Module 0716-MVS&amp;A-9.</b>	<b>Perform surface finishing operations on the given job .....</b>	<b>40</b>
<b>Moudle: 0716-MVS&amp;A-10.</b>	<b>Perform Drilling Machine Operations.....</b>	<b>43</b>
<b>Module: 0716-MVS&amp;A-11.</b>	<b>Perform Metal / Bench Work .....</b>	<b>47</b>
<b>Module: 0716-MVS&amp;A-12.</b>	<b>Produce sheet metal components using various sheet metal operations. ....</b>	<b>52</b>
<b>Module: 0716-MVS&amp;A-13</b>	<b>Use tillage implements .....</b>	<b>55</b>
<b>Module: 0716-MVS&amp;A-14</b>	<b>Maintain occupational health and safety.....</b>	<b>58</b>
<b>Module: 0716-MVS&amp;A-15</b>	<b>Maintain Health While Using Computer/Digital Devices At Work.....</b>	<b>63</b>



## ***National Curriculum Level-2 in Agricultural Machinery Technology***



### **Introduction**

#### **a) Definition/Description of training program (Agricultural Machinery Helper)**

Agriculture is an important sector of Pakistan's economy. This sector directly supports the country's population and accounts for 26 percent of gross domestic product (GDP). Agricultural machinery mechanics work with modern machinery. They assemble, adjust, operate, repair, maintain and test agricultural machinery. This machinery includes land preparation, tilling, sowing & planting, irrigating, spraying, harvesting, drying and equipment handling. They often supervise skilled mechanics and other workers who keep machines and systems operating at maximum efficiency.

#### **b) Purpose of the training program:**

The purpose of this qualification is to set the high professional standards for the agricultural machinery helper. The specific objectives of developing these qualifications are as under:

- Improve the professional competence of the trainees
- Provide opportunities for recognition of the skills attained through formal or informal pathways
- Improve the quality and effectiveness of the training and assessment for Agricultural Technological sector
- Enabling / helping / facilitating the existing workforce to indulge themselves in new technologies and methods



## **National Curriculum Level-2 in Agricultural Machinery Technology**



### **c) Overall objectives of training program:**

The main objectives of the National Vocational Certificate Level 2 in Agricultural Machinery Technology (Agricultural Machinery Helper) are as follows:

- Improve the professional competence of agricultural machinery work
- Capacitate the local community and trainers in modern CBT training, methodologies and processes as envisaged under NVQF
- Provide flexible pathways and progressions in the agricultural sector
- Enable the trainees to perform their duties in efficient manner
- Establish a standardized and sustainable system of training for agricultural machinery work across globe

### **d) Competencies to be gained after completion of course:**

At the end of the course, the trainee has attained the following core competencies:

#### **National Vocational Certificate Level 2 in Agricultural Machinery Technology (Agricultural Machinery Helper)**

1. Carry out basic marking operations in the workshop
2. Use different types of tools and equipment in the workshop
3. Perform precision measurements on various components
4. Use different type of fastening and locking devices in the workshop
5. Perform basic fitting operations used in the workshop practices
6. Carryout maintenance of tools and machines
7. Identify the hydraulic and pneumatic components in agricultural machinery
8. Perform Cutting of the job
9. Perform surface finishing operations on the given job



## ***National Curriculum Level-2 in Agricultural Machinery Technology***



10. Perform Drilling Machine Operations
11. Perform Metal / Bench Work
12. Produce sheet metal components using various sheet metal operations.
13. Use tillage implements
14. Maintain occupational health and safety
15. Maintain good health while using Computer/Digital devices at work

**e) Possible available job opportunities, available immediately and later in the future:**

### **Possible Career paths**

- Agricultural Machinery Helper
- Agricultural Machinery Operator
- Agricultural Machinery Technician
- Agricultural Machinery Mechanic



## National Curriculum Level-2 in Agricultural Machinery Technology



### f) Trainee entry level:

The entry level for National Vocational Certificate Level 2 in Agricultural Machinery Technology (**Agricultural Machinery Helper**) is given below:

Title	Entry requirements
National Vocational Certificate Level 2 in Agricultural Machinery Technology <b>(Agricultural Machinery Helper)</b>	Entry for assessment for this qualification is open. However, entry into formal training institutes, based on this qualification is a candidate having <b>Middle or equivalent</b>

### g) Minimum qualification of trainer:

A. Must be a holder of DAE/Level 5 in Auto and Farm Machinery/Agricultural Machinery Technology with at least 3 years relevant experience

OR

B. B.SC/B.E Agricultural Engineering

### h) Recommended trainer: trainee ratio

The recommended maximum trainer: trainee ratio for this program is 1 trainer for 25 trainees.

### i) Medium of instruction i.e. language of instruction:

Instructions will be in Urdu/ English/ Local language.





## **National Curriculum Level-2 in Agricultural Machinery Technology**



### **j) Duration of the course (Total time, Theory & Practical time):**

The distribution of contact hours is given below:

<b>Total</b>	-	590 hours
<b>Theory</b>	-	116 hours (19.66%)
<b>Practical</b>	-	474 hours (80.33%)

**Proposed Course Duration-** 6 Months

### **Sequence of modules:**

- 1) Module A: Carry out basic marking operations in the workshop
- 2) Module B: Use different types of tools and equipment in the workshop
- 3) Module C: Perform precision measurements on various components
- 4) Module D: Use different type of fastening and locking devices in the workshop
- 5) Module E: Perform basic fitting operations used in the workshop practices
- 6) Module F: Carryout maintenance of tools and machines
- 7) Module G: Identify the hydraulic and pneumatic components in agricultural machinery
- 8) Module H: Perform Cutting of the job
- 9) Module I: Perform surface finishing operations on the given job
- 10) Module J: Perform Drilling Machine Operations
- 11) Module K: Perform Metal / Bench Work
- 12) Module L: Produce sheet metal components using various sheet metal operations
- 13) Module M: Use tillage implements
- 14) Module N: Maintain occupational health and safety
- 15) Module O: Maintain good health while using Computer/Digital devices at work



## National Curriculum Level-2 in Agricultural Machinery Technology



### k) Summary template-overview of the curriculum:

Following is the structure of the course:

SR No	Competency Standards	NVQF Level	Category	Estimated Contact Hours			Cr Hr
				Th	Pr	To tal	
Level 2 (Agricultural Machinery Helper)							
1	Carry out basic marking operations in the workshop	2	Technical	7	21	28	2.8
2	Use different types of tools and equipment in the workshop	2	Technical	10	24	34	3.4
3	Perform precision measurements on various components	2	Technical	10	36	46	4.6
4	Use different type of fastening and locking devices in the workshop	2	Technical	6	24	30	3
5	Perform basic fitting operations used in the workshop practices	2	Technical	7	21	28	2.8
6	Carryout maintenance of tools and machines	2	Technical	9	24	33	3.3
7	Identify the hydraulic and pneumatic components in agricultural machinery	2	Technical	10	18	28	2.8
8	Perform Cutting of the job	2	Technical	8	54	62	6.2



**National Curriculum Level-2 in Agricultural Machinery Technology**



9	Perform surface finishing operations on the given job	2	Technical	5	30	35	3.5
10	Perform Drilling Machine Operations	2	Technical	3	15	18	1.8
11	Perform Metal / Bench Work	2	Technical	6	60	66	6.6
12	Produce sheet metal components using various sheet metal operations.	2	Technical	6	36	42	4.2
13	Use tillage implements	2	Technical	17	63	80	8
14	Maintain occupational health and safety	2	Generic	6	24	30	3
15	Maintain good health while using Computer/Digital devices at work	2	Generic	6	24	30	3
	<b>Total</b>			<b>116</b>	<b>474</b>	<b>590</b>	<b>59</b>
	<b>Percentage</b>			<b>19.66 10169</b>	<b>80.33 89831</b>		



## Detail of Modules

### Module: 0716-MVS&A-1 Carry out basic marking operations in the workshop

**Objective:** After the completion of this module, the Trainee will be able to perform all the tasks in workshop by following the standardized procedure.

**Duration: 28 Hours**

**Theory: 7 Hours**

**Practice: 21 Hours**

**Credit Hours: 2.8**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Perform Marking with Line scribe	<b>Trainee will be able to:</b> <ul style="list-style-type: none"><li>• Interpret the given drawing</li><li>• Measure the prescribed dimensions with appropriate tool</li><li>• Prepare the surface for marking</li><li>• Mark the job with line</li></ul>	Describe basic marking tools  <b><u>Practical Activity:</u></b>  Mark the given job as per specified dimensions	Theory- 2 Hrs  Practical-6 Hrs  Total- 08 Hrs	<ul style="list-style-type: none"><li>• Safety goggles</li><li>• Safety helmet</li><li>• Safety mask</li><li>• Safety Shoes</li><li>• Safety gloves</li><li>• Line Scriber</li><li>• Steel foot rule</li></ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



		<p>scriber</p> <ul style="list-style-type: none"> <li>Mark the Arc with Divider</li> </ul>				
<b>LU2.</b> Marking Punch	Perform with	<p><b>Trainee will be able to:</b></p> <ul style="list-style-type: none"> <li>Prepare the surface for punching</li> <li>Select the proper hammer and punching tool for the job</li> <li>Punch the job according to drawing</li> </ul>	<p>Describe safety during Punching</p> <p><b><u>Practical Activity:</u></b></p> <p>Punch the MS sheet as per given specification</p>	<p>Theory- 2 Hrs</p> <p>Practical- 9 Hrs</p> <p>Total- 11 Hrs</p>	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Safety gloves</li> <li>Hammer</li> <li>Center Punch</li> </ul>	Training Workshop
<b>LU3.</b> Use Tri-square for angle marking		<p><b>Trainee will be able to:</b></p> <ul style="list-style-type: none"> <li>Divide &amp; mark the center</li> <li>Select the proper Angle protractor</li> <li>Measure the angle for precision</li> </ul>	<p>Describe the basics of angel marking operations</p> <p><b><u>Practical Activity:</u></b></p> <p>Mark the job on given angle</p>	<p>Theory- 3 Hrs</p> <p>Practical- 6 Hrs</p> <p>Total- 9 Hrs</p>	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Safety gloves</li> <li>Protector</li> <li>Line Scriber</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



**Module: 0716-MVS&A-2. Use different types of tools and equipment in the workshop**

**Objective:** After the completion of this module, the Trainee will be able to perform all the basic tasks in workshop by following the standardized procedure.

**Duration: 34 Hours**

**Theory: 10 Hours**

**Practice: 24 Hours**

**Credit Hours: 3.4**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b> Select appropriate measuring tool for the given job	<b>Trainee will be able to:</b> <ul style="list-style-type: none"><li>Identify the measuring tools</li><li>Select the appropriate measuring tools for given job</li><li>Use the measuring tools on given job</li></ul>	Describe the units and their conversion used for measuring  <b><u>Practical Activity:</u></b>  Select the appropriate tool for given measurement	Theory- 2 Hrs  Practical- 3 Hrs  Total- 5 Hrs	<ul style="list-style-type: none"><li>Measuring tape</li><li>Steel foot rule</li></ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU2.</b> Perform measurement of given job with Measuring Tape	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Identify the measuring tape</li> <li>• Select the appropriate measuring tape</li> <li>• Measure the job in inches with measuring tape</li> <li>• Measure the job in millimeter with measuring tape</li> </ul>	Describe the units and their conversion used for measuring  Calculate the least count.  <b><u>Practical Activity:</u></b>  Measure the dimensions of job and describe in different units	Theory- 2Hrs  Practical- 6 Hrs  Total- 8 Hrs	<ul style="list-style-type: none"> <li>• Safety gloves</li> <li>• Steel foot rule</li> <li>• Vernier caliper</li> <li>• Micrometer</li> <li>• Measuring tape</li> </ul>	Training Workshop
<b>LU3.</b> Select and Use appropriate spanner	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• .Identify the different spanner</li> <li>• Open the nuts and bolts with open end spanner</li> <li>• Open the nuts and bolts with ring spanner</li> <li>• Open the nuts and bolts with combination spanner</li> <li>• Open the nuts and bolts with box spanner</li> <li>• Open the nuts and bolts</li> </ul>	Describe different types of spanners for specific job  Describe the angle and direction for the appropriate usage of spanner  <b><u>Practical Activity:</u></b>  Tight the nut with appropriate spanner	Theory- 2 Hrs  Practical- 3 Hrs  Total- 5 Hrs	<ul style="list-style-type: none"> <li>• Safety gloves</li> <li>• Open end spanner</li> <li>• Combination spanner</li> <li>• Ring spanner</li> <li>• Box spanner</li> <li>• Offset spanner</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



	with offset spanner				
<b>LU4.</b> Select and use appropriate Screw driver	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Identify different types of screw driver</li> <li>• Open the screw with flat screw driver</li> <li>• Open the screw with Philip screw driver</li> <li>• Open the stuck screw with impact screw driver</li> </ul>	Describe the selection of screw set as per requirement <b><u>Practical Activity:</u></b> Open the screw with appropriate screw driver	Theory- 2Hrs Practical- 6 Hrs Total- 8 Hrs	<ul style="list-style-type: none"> <li>• Flat screw driver</li> <li>• Philips screw driver</li> <li>• Stubby screw driver</li> <li>• Screw bits</li> <li>• Impact screw driver</li> </ul>	
<b>LU5.</b> Select and use appropriate Plier	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Identify different types of pliers</li> <li>• Use the combination plier given job</li> <li>• Use the nose plier given job</li> <li>• Use the cutter plier given</li> </ul>	Describe the usage of different types of pliers <b><u>Practical Activity:</u></b> Install the snap ring with inside circlip plier	Theory- 2Hrs Practical- 6 Hrs Total- 8 Hrs	<ul style="list-style-type: none"> <li>• Combination plier</li> <li>• Nose plier</li> <li>• Inside Circlip plier</li> <li>• Outside Circlip plier</li> <li>• Grip (Lock) plier</li> <li>• Nail puller plier</li> <li>• Crimping</li> </ul>	





**National Curriculum Level-2 in Agricultural Machinery Technology**



	<p>job</p> <ul style="list-style-type: none"><li>• Install the snap ring with outer circlip-plier</li><li>• Install the snap ring with inside circlipplier</li></ul>			<p>plier</p> <ul style="list-style-type: none"><li>• Slip joint plier</li><li>• Shearing plier</li><li>• Wheel balancing plier</li><li>• Sap ring plier</li><li>• Long nose plier</li><li>• Cutter plier</li><li>• Tongue and groove plier</li></ul>	
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## National Curriculum Level-2 in Agricultural Machinery Technology



### Module: 0716-MVS&A-3.      Perform precision measurements on various components

**Objective:** After the completion of this module, the Trainee will be able to perform all the precision measurement by following the standardized procedure.

**Duration: 46 Hours**

**Theory: 10 Hours**

**Practice: 36 Hours**

**Credit Hours: 4.6**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Perform measurement of given job with Vernier caliper	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Select the appropriate Vernier caliper for given measurement</li> <li>• Enlist the measuring units in FPS &amp; MKS &amp; SI</li> <li>• Measure the job in inches</li> <li>• Measure the job in millimeter</li> <li>• Store the Vernier caliper as per standard procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Define FPS &amp; MKS &amp; SI units.</li> <li>• Understanding of least count and zero error in Vernier caliper</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Measure the given job with vernier caliper</p>	Theory- 02 Hrs  Practical- 09 Hrs  Total- 11 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Safety gloves</li> <li>• Vernier calipers</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU2.</b> Perform measurement of given job with Micrometer	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Select the appropriate micrometer for given measurement</li> <li>• Measure the job in inches</li> <li>• Measure the job in millimeter</li> <li>• Store the micrometer as per standard procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding of least count and zero error in micrometer</li> </ul> <b><u>Practical Activity:</u></b>  Measure the given job with micrometer	Theory- 02 Hrs  Practical- 09 Hrs  Total- 11 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Safety gloves</li> <li>• Micrometer</li> </ul>	Training Workshop
<b>LU3.</b> Perform operation of Dial gauge	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Select the appropriate dial gauge for given measurement</li> <li>• Measure the backlash given job</li> <li>• Measure the end play given job</li> <li>• Store the Dial gauge as per standard procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the basics function of dial gauge</li> <li>• Describe the fixing procedure of dial gauge on magnetic stand</li> </ul> <b><u>Practical Activity:</u></b>  Check the backlash of timing gear  Check the end play of crank shaft	Theory- 01 Hrs  Practical- 03 Hrs  Total- 04 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Dial Gauge</li> <li>• Magnetic Stand</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU4</b> Perform measurement with feeler gauge	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Select the appropriate feeler gauge for given measurement</li> <li>• Measure the spark plug gap in inches</li> <li>• Measure the spark plug gap in millimeter</li> <li>• Store the dial gauge as per standard procedure</li> </ul>	Describe the basics function and uses of feeler gauge  <b><u>Practical Activity:</u></b>  Check the tappet clearance with feeler gauge	Theory- 01 Hrs  Practical- 03 Hrs  Total- 04 Hrs	<ul style="list-style-type: none"> <li>• Feeler gauge</li> <li>• Safety gloves</li> </ul>	Training Workshop
<b>LU5</b> Perform measurement with Pitch gauge	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Select the appropriate pitch gauge for given measurement</li> <li>• Measure the pitch of thread in inches</li> <li>• Measure the pitch of thread in millimeter</li> <li>• Store the pitch gauge as per standard procedure</li> </ul>	Describe the basic functions and uses of pitch gauge Types of threads gauge <b><u>Practical Activity:</u></b> Measure the threads of gear with pitch/thread gauge	Theory- 02 Hrs  Practical -6 Hrs  Total- 08Hrs	<ul style="list-style-type: none"> <li>• Pitch gauge</li> <li>• Safety gloves</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<p><b>LU 6</b> Measure torque with torque wrench</p>	<p><b>Trainee will be able to:</b></p> <ul style="list-style-type: none"> <li>• Select the appropriate torque wrench according to job</li> <li>• Tight the nut and bolt at recommended torque with click type torque wrench</li> <li>• Tight the nut and bolt at recommended torque with beam type torque wrench</li> <li>• Tight the nut and bolt recommended torque with dial type torque wrench</li> <li>• Store the torque wrench as per standard procedure</li> </ul>	<p>Describe the torque and its measuring units</p> <p>Describe working principle of torque wrench</p> <p>Read and interpret the scale of torque wrench</p> <p><b><u>Practical Activity:</u></b></p> <p>Tight the given nut on specified torque with torque wrench</p>	<p>Theory- 02 Hrs</p> <p>Practical- 06 Hrs</p> <p>Total- 08Hrs</p>	<ul style="list-style-type: none"> <li>• Torque wrench</li> <li>• Safety gloves</li> </ul>	<p>Training Workshop</p>
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**Module: 0716-MVS&A-4. Use different type of fastening and locking devices in the workshop**

**Objective:** After the completion of this module, the Trainee will be able to Fasten and clamp different jobs appropriately by following the standardized procedure.by following the standardized procedure.

**Duration: 30 Hours**

**Theory: 06 Hours**

**Practice: 24 Hours**

**Credit Hours: 3**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Clamp the given job with appropriate clamp	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Select the appropriate clamp for the given job</li> <li>• Level the both parts of job</li> <li>• Spot the proper position of clamp</li> <li>• Measure the correctness of job</li> <li>• Tight the clamp</li> </ul>	<ul style="list-style-type: none"> <li>• Describe drawing and drilling associated with clamping process</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Clamp the given job as per the given drawing</p>	Theory- 02 Hrs  Practical- 06 Hrs  Total- 08 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Safety gloves</li> <li>• Steel foot rule</li> <li>• Clamps</li> <li>• Spanner</li> <li>• Work bench</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU2.</b> Fasten the given job	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Clean the surface of job</li> <li>• Align both parts of job</li> <li>• Fasten the job with nut and bolt</li> <li>• Tight the nut and bolt upto optimal torque</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the usage of keys and cotters</li> </ul> <b><u>Practical Activity:</u></b> Fasten the job as per drawing	Theory- 02 Hrs  Practical- 09 Hrs  Total- 11 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Safety gloves</li> <li>• Hammer</li> <li>• Center Punch</li> <li>• Spanner</li> <li>• Nuts and bolts</li> <li>• Washers</li> <li>• Combination plier</li> <li>• Grip plier</li> <li>• Fate screw driver</li> </ul>	Training Workshop
<b>LU3.</b> Rivet the given fastening and locking job	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Finish the Both surface of job</li> <li>• Align the both surfaces</li> <li>• Drill the job</li> <li>• Apply the rivet</li> <li>• Fasten the rivet with proper</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the basics of riveting and material specification required for riveting</li> </ul> <b><u>Practical Activity:</u></b> Hot Rivet the given job	Theory- 02 Hrs  Practical- 09 Hrs  Total- 11 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Safety gloves</li> <li>• Riveting gun</li> <li>• Riveting</li> </ul>	Training Workshop



*National Curriculum Level-2 in Agricultural Machinery Technology*



	riveting tool			<p>punch</p> <ul style="list-style-type: none"><li>• Hammer</li><li>• Drill machine</li></ul>	
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**Module: 0716-MVS&A-5. Perform basic fitting operations used in the workshop practices**

**Overview.** After this Module candidate will be able to place and remove rings from piston, extract the bearing from housing as per the requirements by following the standardized procedure.

**Duration: 28 Hours**

**Theory: 07 Hours**

**Practice: 21 Hours**

**Credit Hours: 2.8**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Use Ring compressor	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Select the proper ring compressor</li> <li>Lubricate the rings</li> <li>Tight the compressor with proper key</li> <li>Position the piston ring</li> <li>Install the Rings in piston</li> </ul>	<ul style="list-style-type: none"> <li>Describe the types and material of different rings</li> <li>Describe ring installation procedure</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Install the compression ring in piston</p>	Theory- 02 Hrs  Practical- 06 Hrs  Total- 08 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Safety helmet</li> <li>Safety Shoes</li> <li>Gloves</li> <li>Ring Compressor</li> <li>Oil Cane</li> <li>Spanner</li> <li>Screw driver</li> <li>Plier</li> <li>Cotton waste</li> <li>Work bench</li> <li>Piston</li> <li>Feeler gauge</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU2.</b>  Use Ring expander	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select the proper ring Expander</li> <li>• Insert the rings in Expander</li> <li>• Install the rings on piston</li> <li>• Check ring grove clearance</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the ring grove clearance</li> <li>• Describe the ring sequence</li> </ul> <b><u>Practical Activity:</u></b>  Put the rings according to the sequence	Theory- 02 Hrs  Practical- 06 Hrs  Total- 08 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety Shoes</li> <li>• Gloves</li> <li>• Ring Compressor</li> <li>• Ring Expander</li> <li>• Spanner</li> <li>• Screw driver</li> <li>• Plier</li> <li>• Cotton waste</li> <li>• Work bench</li> <li>• Piston</li> <li>• Rings</li> <li>• Feeler gauge</li> </ul>	Training Workshop
<b>LU3</b>  Select & use appropriate pullers	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select the proper bearing puller for given job</li> <li>• Clamp the puller in proper way</li> <li>• Tight the puller with proper spanner</li> <li>• Extract the bearing with bearing puller</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the installation procedure of bearing puller</li> </ul> <b><u>Practical Activity:</u></b>  Remove the bearing from tractor front hub	Theory- 02 Hrs  Practical- 06 Hrs  Total- 08 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety Shoes</li> <li>• Gloves</li> <li>• Bearing puller</li> <li>• Bearing</li> <li>• Spanner</li> <li>• Lubricant</li> </ul>	



**National Curriculum Level-2 in Agricultural Machinery Technology**



<b>LU4</b>  Select & use appropriate dowel pin	<b>Trainee will be able to</b> <ul style="list-style-type: none"><li>• Measure the hole for dowel pin</li><li>• Select the proper dowel pin</li><li>• Install dowel pin</li></ul>	<ul style="list-style-type: none"><li>• Describe the purpose and uses of dowel pin</li></ul> <b><u>Practical Activity:</u></b> Install the dowel pin on adopter plate	Theory- 01 Hrs  Practical- 03 Hrs  Total- 04 Hrs	<ul style="list-style-type: none"><li>• Safety goggles</li><li>• Safety helmet</li><li>• Safety Shoes</li><li>• Gloves</li><li>• Hammer</li><li>• Pin punch</li><li>• Nose Plier</li></ul>	
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## National Curriculum Level-2 in Agricultural Machinery Technology



### Module: 0716-MVS&A-6. Carryout maintenance of tools and machines

**Overview.** After this Module candidate will be able to perform periodic maintenance in a machine shop.

**Duration: 33 Hours**

**Theory: 09 Hours**

**Practice: 24 Hours**

**Credit Hours: 3.3**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Perform Measuring tools maintenance	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Perform Preventive Maintenance of Tools by following periodic maintenance chart</li> <li>Perform General Housekeeping</li> <li>Prepare cleaning of hand tools</li> <li>Store separate proper place of measuring tools</li> </ul>	Describe the calibration process of measuring tools  <b><u>Practical Activity:</u></b>  Store the measuring tools in an appropriate way	Theory- 01 Hrs  Practical- 03 Hrs  Total- 04 Hrs	<ul style="list-style-type: none"> <li>Measuring tools</li> <li>Cotton waste</li> <li>Cleaning fiber brush</li> <li>Kerosene oil</li> </ul>	Training Workshop
<b>LU2.</b>  Perform Hand tools maintenance	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Perform Preventive Maintenance of Tools</li> <li>Perform General Housekeeping</li> <li>Prepare cleaning of hand</li> </ul>	Describe the cleaning procedure of hand tools  <b><u>Practical Activity:</u></b>  Store the hand tools in an	Theory- 01 Hrs  Practical-	<ul style="list-style-type: none"> <li>Hand tools</li> <li>kerosene oil</li> <li>Cotton waste</li> <li>Lubrication oil</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	tools <ul style="list-style-type: none"> <li>• Store proper place of hand tools</li> </ul>	appropriate way	03 Hrs  Total-  04 Hrs		
<b>LU3</b>  Perform Power tools maintenance	<b>Trainee e\will be able to</b> <ul style="list-style-type: none"> <li>• Perform Preventive Maintenance of Tools</li> <li>• Perform General Housekeeping</li> <li>• Prepare cleaning of power tools</li> <li>• Store proper place of power tools</li> </ul>	Describe the periodic maintenance of power tools  <u><b>Practical Activity:</b></u>  Service the filter of pneumatic gun  Service the air cleaner of air compressor  Change the carbon brushes of electric hand drill machine	<b>Theory-</b>  01 Hrs  <b>Practical-</b>  03 Hrs  <b>Total-</b>  04 Hrs	<ul style="list-style-type: none"> <li>• Power tools</li> <li>• kerosene oil</li> <li>• Cotton waste</li> <li>• Lubrication oil</li> <li>• Carbon brushes</li> <li>• Screw driver</li> <li>• Tester</li> <li>• Spanner</li> <li>• Plier</li> </ul>	Training Workshop
<b>LU4</b>  Perform Lathe machine maintenance	Trainee will be able to <ul style="list-style-type: none"> <li>• Perform Preventive Maintenance of Machines and Tools</li> <li>• Perform General</li> </ul>	Describe the periodic maintenance of lathe machine  <u><b>Practical Activity:</b></u>	Theory-  04 Hrs  Practical-	<ul style="list-style-type: none"> <li>• lathe machine</li> <li>• kerosene oil</li> <li>• Cotton waste</li> <li>• Lubrication oil</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	<p>Housekeeping and Maintenance of Machines and Tools</p> <ul style="list-style-type: none"> <li>• Prepare oiling and greasing chart (daily, weekly as machine requirement).</li> <li>• Prepare machine history record date of installation condition, oiling and maintenance has to done.</li> <li>• Inspect and assess the general condition of an assigned machine on regular basis.</li> <li>• Observe problems and carry out routine maintenance as per given instructions and schedules.</li> <li>• Report to authority that problems which are beyond the scope him.</li> <li>• interparate the maintenance chart</li> </ul>	<p>Replace the chuck of lathe machine</p> <p>Service the tool post of lathe machine</p>	<p>09 Hrs</p> <p>Total-</p> <p>13 Hrs</p>	<ul style="list-style-type: none"> <li>• Screw driver</li> <li>• Special spanner for lathe</li> <li>• Hook spanner</li> </ul>	
<p><b>LU5</b></p> <p>Perform Pedestal Drill machine maintenance</p>	<p><b>Trainee will be able to</b></p> <ul style="list-style-type: none"> <li>• Perform Preventive Maintenance of Machines and Tools</li> <li>• Perform General Housekeeping and</li> </ul>	<p>Describe the periodic maintenance of Pedestal Drill machine</p> <p><b><u>Practical Activity:</u></b></p>	<p>Theory-</p> <p>01 Hrs</p> <p>Practical-</p> <p>03 Hrs</p>	<ul style="list-style-type: none"> <li>• Pedestal Drill machine</li> <li>• kerosene oil</li> <li>• Cotton waste</li> <li>• Lubrication</li> </ul>	<p>Training Workshop</p>



## National Curriculum Level-2 in Agricultural Machinery Technology



	<p>Maintenance of Machines and Tools</p> <ul style="list-style-type: none"> <li>• Prepare oiling and greasing chart (daily, weekly as machine requirement).</li> <li>• Prepare machine history record date of installation condition, oiling and maintenance has to done.</li> <li>• Inspect and assess the general condition of an assigned machine on regular basis.</li> <li>• Observe problems and carry out routine maintenance as per given instructions and schedules.</li> <li>• Report to authority that problems which are beyond the scope him.</li> <li>• interparate the maintenance chart</li> </ul>	Service the Pedestal Drill machine	Total- 04 Hrs	<ul style="list-style-type: none"> <li>• oil</li> <li>• fiber brushes</li> <li>• Screw driver</li> <li>• Plier</li> <li>• Drift key</li> </ul>	
<b>LU6</b>  Perform Welding equipment maintenance	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Perform Preventive Maintenance of Machines and Tools</li> <li>• Perform General Housekeeping and</li> </ul>	Describe the periodic maintenance of Welding plant  <u><b>Practical Activity:</b></u>	Theory- 01 Hrs  Practical- 03 Hrs	<ul style="list-style-type: none"> <li>• kerosene oil</li> <li>• Cotton waste</li> <li>• fiber brushes</li> <li>• Screw driver</li> <li>• Plier</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



	<p>Maintenance of Machines and Tools</p> <ul style="list-style-type: none"><li>• Prepare oiling and greasing chart (daily, weekly as machine requirement).</li><li>• Prepare machine history record date of installation condition, oiling and maintenance has to done.</li><li>• Inspect and assess the general condition of an assigned machine on regular basis.</li><li>• Observe problems and carry out routine maintenance as per given instructions and schedules.</li><li>• Report to authority that problems which are beyond the scope him.</li><li>• Read maintenance schedule</li></ul>	Service the welding plant	Total- 04 Hrs	<ul style="list-style-type: none"><li>• Welding plant</li><li>• File</li></ul>	
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## National Curriculum Level-2 in Agricultural Machinery Technology



### Module: 0716-MVS&A-7. Identify the hydraulic and pneumatic components in agricultural machinery

**Overview.** After this Module candidate will be able to identify the hydraulic and pneumatic components in agricultural machinery.

**Duration: 28 Hours**

**Theory: 10 Hours**

**Practice: 18 Hours**

**Credit Hours: 2.8**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Identify hydraulic system components	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Identify the hydraulic pump</li> <li>Identify the location of hydraulic pump</li> <li>Identify the hydraulic valve</li> <li>Identify the location of hydraulic valve</li> <li>Identify the hydraulic Actuator</li> <li>Identify the location of hydraulic Actuator</li> </ul>	<ul style="list-style-type: none"> <li>Describe Hydraulic system and its working.</li> </ul> <b><u>Practical Activity:</u></b>  Identify the different components of hydraulic system	       Theory- 03 Hrs Practical- 06 Hrs Total- 09 Hrs	<ul style="list-style-type: none"> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Spanner</li> <li>Pressure gauges</li> <li>Hydraulic system components</li> </ul>	       Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU2.</b>  Identify Compressor & hydraulic pipe/ tubes	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Identify the hydraulic tube and hose</li> <li>Identify the location of hydraulic tube and hose</li> <li>Identify the compressor</li> <li>Identify the location of compressor</li> <li>Enlist the components of hydraulic system</li> </ul>	<ul style="list-style-type: none"> <li>Describe various components of Hydraulic system</li> </ul> <b><u>Practical Activity:</u></b>  Identify the different components of hydraulic system	Theory- 03 Hrs  Practical- 06 Hrs  Total- 09 Hrs	<ul style="list-style-type: none"> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Spanner</li> <li>Hydraulic system components</li> </ul>	Training Workshop
<b>LU3</b>  Identify pneumatic components	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Identify the pneumatic valve</li> <li>Identify the location of pneumatic valve</li> <li>Identify the pneumatic actuator</li> <li>Identify the location of actuator</li> </ul>	Describe the working of pneumatic system  <b><u>Practical Activity:</u></b>  Identify the different components of pneumatic system	Theory- 04 Hrs  Practical- 06 Hrs  Total- 10 Hrs	<ul style="list-style-type: none"> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Spanner</li> <li>Pneumatic system components</li> </ul>	Training Workshop



***National Curriculum Level-2 in Agricultural Machinery Technology***



	<ul style="list-style-type: none"><li>• Enlist the components of pneumatic system</li></ul>				
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**Module: 0716-MVS&A-8. Perform Cutting of the job**

**Overview.** After this module candidate will be able to carry out cutting with hand hacksaw, tube cutter and flare the tube by following the standardized procedure.

**Duration: 62 Hours**

**Theory: 08 Hours**

**Practice: 54 Hours**

**Credit Hours: 6.2**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b> Cut the given job with Hand hacksaw	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Mark the job according to given drawing</li> <li>Select appropriate blade according to job requirement</li> <li>Install the blade into hacksaw frame</li> <li>Clamp the job into the vice</li> <li>Cut the given job with hacksaw</li> <li>Adopt methods and</li> </ul>	<ul style="list-style-type: none"> <li>Define types of cutting tools</li> <li>Describe the cutting process w.r.t material</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Cut the given job on given angel with hand hacksaw</p>	Theory- 01 Hrs Practical- 09 Hrs Total- 10 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Gloves</li> <li>Hand hacksaw</li> <li>Cutting blades</li> <li>Set square</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	<p>techniques for sawing that is appropriate to job requirement</p> <ul style="list-style-type: none"> <li>Follow marked line during sawing to ensure accuracy.</li> </ul>				
<p><b>LU2.</b></p> <p>Carry out Sawing at different angles</p>	<p><b>Trainee will be able to</b></p> <ul style="list-style-type: none"> <li>Mark the job according to given drawing</li> <li>Select appropriate blade according to job requirement</li> <li>Set blade in frame of metal circular saw as per procedure.</li> <li>Ensure the blade tightness and rotating side.</li> <li>Ensure the work piece is clamped firmly and properly</li> <li>Adopt the methods and techniques for sawing that</li> </ul>	<ul style="list-style-type: none"> <li>Describe different types of saw</li> <li>Describe sawing process w.r.t material</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Cut the given job on given angle with hand hacksaw</p>	<p>Theory- 01 Hrs</p> <p>Practical- 09 Hrs</p> <p>Total- 10 Hrs</p>	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Hand hacksaw</li> <li>Gloves</li> <li>Cutting blades</li> <li>Vice</li> <li>Work bench</li> </ul>	<p>Training Workshop</p>



## National Curriculum Level-2 in Agricultural Machinery Technology



	<p>is appropriate to job requirement</p> <ul style="list-style-type: none"> <li>Follow marked line during sawing to ensure accuracy</li> </ul>				
<b>LU3</b>  Cut the tube with tube cutter	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Measure the length of tube that required</li> <li>Select the tube cutter according to tube diameter</li> <li>Cut the tube with tube cutter</li> <li>Remove the burr with burr remover</li> </ul>	Describe the properties of tube w.r.t size  <u><b>Practical Activity:</b></u>  Cut the given job with tube cutter	Theory- 01 Hrs  Practical- 09 Hrs  Total- 10 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Gloves</li> <li>Tube cutter</li> </ul>	Training Workshop
<b>LU4</b>  Use Flaring tool	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Select the proper flaring tool for given job</li> <li>Clamp the tube into the vise</li> <li>Perform the flaring</li> </ul>	Describe the metal properties w.r.t. their cutting n bending process  <u><b>Practical Activity:</b></u>  Flare the cut tube	Theory- 01 Hrs  Practical- 09 Hrs  Total- 10 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Gloves</li> <li>Flaring tools</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



<b>LU5</b>  Cut the job with power cutter	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select and measure the job</li> <li>• Clamp the job into the vise</li> <li>• Perform cutting with power cutter</li> </ul>	Describe power cutter and its types.  <b><u>Practical Activity:</u></b>  Cut the given job with power cutter	Theory- 01 Hrs  Practical- 09 Hrs  Total- 10 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Gloves</li> <li>• Power cutters</li> <li>• Clamps</li> </ul>	Training Workshop
<b>LU6</b>  Bend the tube with tube bender	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select and measure the tube</li> <li>• Clamp the tube into the tube bender</li> </ul>	Describe the bending properties w.r.t. material  <b><u>Practical Activity:</u></b>  Bend the given job with tube bender	Theory- 03 Hrs  Practical- 09 Hrs  Total- 12 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Gloves</li> <li>• Tube bender</li> <li>• Sockets</li> <li>• Bending wheel</li> </ul>	Training Workshop



**Module 0716-MVS&A-9. Perform surface finishing operations on the given job**

**Overview.** After this module candidate will be able to finish the Job surface with manual as well as power tools by following the standardized procedure.

**Duration: 35 Hours**

**Theory: 05 Hours**

**Practice: 30 Hours**

**Credit Hours: 3.5**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  File the job with appropriate file	<b>Trainee will be able to:</b> <ul style="list-style-type: none"><li>Clamp the job into the vice</li><li>Select the file according to the job</li><li>Grip the file with hands in proper way</li><li>Perform filing with file</li></ul>	<ul style="list-style-type: none"><li>Describe the file selection as per the usage</li><li>Describe the gripping of job in vice</li></ul> <p><b><u>Practical Activity:</u></b></p> <p>Perform filing on the given job</p>	Theory- 01 Hrs  Practical- 06 Hrs  Total- 07 Hrs	<ul style="list-style-type: none"><li>Safety goggles</li><li>Safety helmet</li><li>Safety mask</li><li>Safety Shoes</li><li>File card</li><li>Files</li><li>Filler gauge</li><li>Set square</li><li>Vernier caliper</li></ul>	Training Workshop





## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU2.</b>  Perform off-hand grinding	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select the proper size and shape of grinding wheel.</li> <li>• Observe personal and workplace safety regarding grinding.</li> <li>• Perform grinding as per specified techniques</li> <li>• Produce component according to work operations.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the grinding disk selection as per the usage</li> <li>• Describe the gripping of job in vice</li> </ul> <b><u>Practical Activity:</u></b>  Perform off-hand grinding on given job	Theory- 01 Hrs  Practical- 06 Hrs  Total- 07 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Gloves</li> <li>• Grinding disk</li> <li>• Hand grinder machine</li> </ul>	Training Workshop
<b>LU3</b>  Sharp the single point cutting tool on grinder	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select the proper size and shape of grinding wheel.</li> <li>• Observe the personal and workplace safety regarding grinding</li> <li>• Tight the work piece against the rotating wheel by placing it on the tool rest.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the proper angle and fastening technique of job</li> </ul> <b><u>Practical Activity:</u></b>  Sharp the cutting tool on grinder	Theory- 01 Hrs  Practical- 06 Hrs  Total- 07 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Gloves</li> <li>• Grinding disk</li> <li>• Grinder machine</li> <li>• Cutting oil</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



<b>LU4</b> Perform grinding with portable grinder	<ul style="list-style-type: none"> <li>• Clamp the job into the vice</li> <li>• Select the portable grinder according to the job</li> <li>• Perform grinding with portable grinder</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the uses and advantages of portable grinder</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Perform grinding of job with portable grinder</p>	Theory- 01 Hrs  Practical- 06 Hrs  Total- 07 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Gloves</li> <li>• Portable Grinder</li> </ul>	Training Workshop
<b>LU5</b> Grind the job with bench grinder	<p><b>Trainee will be able to</b></p> <ul style="list-style-type: none"> <li>• Grip the job in proper way</li> <li>• Select the bench grinder according to the job</li> <li>• Perform grinding with Bench grinder</li> </ul>	<ul style="list-style-type: none"> <li>• Describe proper gripping of job</li> <li>• Explain grinding process</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Perform grinding of job with bench grinder as per given drawing</p>	Theory- 01 Hrs  Practical- 06 Hrs  Total- 07 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Gloves</li> <li>• Grinding disk</li> <li>• Bench grinder machine</li> <li>• Cutting oil</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



### **Module: 0716-MVS&A-10. Perform Drilling Machine Operations**

**Overview.** This module covers the skills and knowledge required to produce holes using drilling machine, perform counter boring and counter sinking and perform machine reaming.

**Duration: 18 Hours**

**Theory: 03 Hours**

**Practice: 15 Hours**

**Credit Hours: 1.8**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Produce holes using drilling machine	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Observe the personal and work place safety.</li> <li>Set up the drilling machine for producing holes according to a job requirement.</li> <li>Manipulate the machine tool controls safely and correctly in line with the operational procedures.</li> <li>Produce components to</li> </ul>	<ul style="list-style-type: none"> <li>Describe the drilling procedure of different sizes</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Drill a hole of 25 mm in the given job</p>	Theory- 01 Hrs  Practical- 05 Hrs  Total- 06 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>gloves</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Center punch</li> <li>Drill machine</li> <li>V Block</li> <li>Drill bits</li> <li>Hammer</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	<p>the required quality and within the specified dimensional accuracy.</p> <ul style="list-style-type: none"> <li>• Carry out quality sampling checks at suitable intervals.</li> <li>• Shut down the equipment to a safe condition</li> </ul>				
<p><b>LU2.</b></p> <p>Perform counter boring and counter sinking</p>	<p><b>Trainee will be able to</b></p> <ul style="list-style-type: none"> <li>• Select the relevant tools according to the information given in engineering drawings and job specifications.</li> <li>• Ensure the tooling is correct in terms of size, shape, type, and grade in order to perform the job / work.</li> <li>• Position the work-piece in the drill in such a way that it is aligned, secured and</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the drilling procedure of different sizes</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Drill a hole of 25 mm in the given job</p>	<p>Theory- 01 Hrs</p> <p>Practical- 05 Hrs</p> <p>Total- 06 Hrs</p>	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• gloves</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Center punch</li> <li>• Drill machine</li> <li>• V Block</li> <li>• Drill bits</li> <li>• Hammer</li> </ul>	<p>Training Workshop</p>



## National Curriculum Level-2 in Agricultural Machinery Technology



	<p>stable during drilling.</p> <ul style="list-style-type: none"> <li>Adjust the speeds and feeds of the drill according to the size, type, and hardness of the work-piece material, in order to perform the optimum cutting without damage to the work-piece.</li> </ul>				
<b>LU3</b>  Perform machine Reaming	<p><b>Trainee will be able to</b></p> <ul style="list-style-type: none"> <li>Observe the personal and workplace safety.</li> <li>Clamp the work-piece in the vice properly.</li> <li>Select the reamer according to the hole's size and drawing requirements</li> <li>Set the reamer in the drill chuck according to procedure.</li> <li>Use the lubricants during reaming for the smooth cutting.</li> <li>Ensure the proper</li> </ul>	<ul style="list-style-type: none"> <li>Describe the reaming procedure of different sizes</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Finish a hole with reamer</p>	<p>Theory- 01 Hrs</p> <p>Practical- 05 Hrs</p> <p>Total- 06 Hrs</p>	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>gloves</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Bench vice</li> <li>Vernier</li> <li>Reamer</li> </ul>	Training Workshop



***National Curriculum Level-2 in Agricultural Machinery Technology***



	alignment of the reamer during the operations.				
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**Module: 0716-MVS&A-11. Perform Metal / Bench Work**

**Overview.** This module covers the skills and knowledge required to develop name plate manually, carry out sawing, prepare inside calliper, prepare dovetail joint, prepare tri square (small size), ,cut threads on work piece, prepare funnel, prepare drawer handle, cut pipe threads and prepare spanner (small size).

**Duration: 66 Hours**

**Theory: 6 Hours**

**Practice: 60 Hours**

**Credit Hours: 6.6**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Develop Name Plate manually	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Select the marking tools</li> <li>Hold the sheet in vice.</li> <li>Cut the sheet as per given drawing</li> <li>Perform surface finishing with file</li> <li>Level the surface with tri-square</li> <li>Mark the plate as per name requirements</li> </ul>	<ul style="list-style-type: none"> <li>Describe the marking and cutting process of metal</li> </ul> <b><u>Practical Activity:</u></b>  Develop a name plate of given size	Theory- 01 Hrs  Practical- 10 Hrs  Total-11 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>gloves</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Letter punch</li> <li>Line scribe</li> <li>Hammer</li> <li>Drill machine</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	<ul style="list-style-type: none"> <li>Punch the marked area</li> <li>Perform finishing with sand paper</li> </ul>				
<b>LU2.</b>  Prepare Dovetail Joint	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Select marking tools</li> <li>Cut sheet as per drawing</li> <li>Perform surface finishing with file</li> <li>Level the surface of both work pieces with tri-square</li> <li>Mark both work pieces according to drawing</li> <li>Create outer notch on work piece using flat file and hacksaw</li> <li>Create inner notch using hacksaw and chisel</li> <li>Compare both pieces by inserting outer notch into inner notch</li> <li>Perform the finishing with</li> </ul>	Describe the types of joints  <u><b>Practical Activity:</b></u>  Create inner notch using hacksaw and chisel	Theory- 01 Hrs  Practical- 10 Hrs  Total-11 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>gloves</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Line scriber</li> <li>Hammer</li> <li>Cutter machine</li> <li>Hacksaw</li> <li>Chisel</li> </ul>	Training Workshop





**National Curriculum Level-2 in Agricultural Machinery Technology**



	the sand paper				
<b>LU3</b>  Cut Threads on Work Piece with tap and die	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Identify different kind of taps &amp; die according to requirement</li> <li>Identify the work piece clamping method.</li> <li>Apply the tap and die alignment.</li> <li>Apply the lubricants while threading.</li> <li>Avoid the unwanted engraving and slips.</li> <li>Identify the proper threading procedure</li> </ul>	<ul style="list-style-type: none"> <li>Describe the procedure of marking</li> <li>Describe the procedure of boring</li> </ul> <b><u>Practical Activity:</u></b>  Make the inner threads on given job	Theory- 01 Hrs  Practical- 10 Hrs  Total-11 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>gloves</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Hammer</li> <li>Center Punch</li> <li>Cutter</li> <li>Tap handle</li> <li>Drill Machine</li> <li>Hacksaw</li> <li>Tap set</li> <li>Oil</li> </ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU4</b>  Cut Pipe Threads	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select marking tools</li> <li>• Cut pipe as per drawing</li> <li>• Select die as per pipe size</li> <li>• Set die into die holder</li> <li>• Select relevant vice for pipe clamping</li> <li>• Perform pipe threading using appropriate method</li> <li>• Perform finishing with sand paper</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the procedure of threading</li> </ul> <b><u>Practical Activity:</u></b>  Make the outer threads on given job	Theory- 01 Hrs  Practical- 10 Hrs  Total-11 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• gloves</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Die handle</li> <li>• Hacksaw</li> <li>• Die set</li> <li>• Oil</li> <li>• Taps with handle</li> </ul>	Training Workshop
<b>LU5</b>  Prepare spanner (small size)	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select marking tools</li> <li>• Cut sheet as per drawing</li> <li>• Perform surface finishing with file</li> <li>• Level the surface with tri-square</li> <li>• Mark radius as per drawing</li> <li>• Develop radius as per</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the measuring, marking, cutting and finishing process of the job</li> </ul> <b><u>Practical Activity:</u></b>  Cut the given sheet on given radius	Theory- 01 Hrs  Practical- 10 Hrs  Total-11 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• gloves</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Hammer</li> <li>• Center Punch</li> <li>• Drill Machine</li> <li>• Hacksaw</li> <li>• MS Sheet</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



	drawing <ul style="list-style-type: none"> <li>• Make the notch with round file</li> <li>• Perform finishing with sand paper</li> </ul>			<ul style="list-style-type: none"> <li>• Hacksaw</li> </ul>	
<b>LU6</b>  Prepare Funnel	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>• Select marking tools</li> <li>• Cut sheet as per drawing</li> <li>• Perform surface finishing with file</li> <li>• Mark the sheet according to drawing</li> <li>• Cut the sheet with hand shear</li> <li>• Create radius of funnel using appropriate tools</li> <li>• Perform flat lock seam bend using bench vice</li> <li>• Perform finishing with sand paper.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the measuring, marking, cutting and finishing process of the job</li> <li>• Types of joints</li> </ul> <p><b><u>Practical Activity:</u></b></p> <p>Cut the given sheet with hand shear</p>	Theory- 01 Hrs  Practical- 10 Hrs  Total-11 Hrs	<ul style="list-style-type: none"> <li>• Safety goggles</li> <li>• gloves</li> <li>• Safety helmet</li> <li>• Safety mask</li> <li>• Safety Shoes</li> <li>• Hammer</li> <li>• Center Punch</li> <li>• Drill Machine</li> <li>• Hacksaw</li> <li>• MS Sheet</li> <li>• Hacksaw</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



**Module: 0716-MVS&A-12. Produce sheet metal components using various sheet metal operations.**

**Overview** After this module candidate will be able to make joint for the sheet ends by following the standardized procedure.

**Duration: 42 Hours**

**Theory: 06 Hours**

**Practice: 36 Hours**

**Credit Hours: 4.2**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b> Select the proper sheet for given job	<b>Trainee will be able to:</b> <ul style="list-style-type: none"><li>Measure the given thickness of sheet</li><li>Measure the given length of sheet</li><li>Mark the sheet as per given drawing</li></ul>	<ul style="list-style-type: none"><li>Describe the suitable gauge of sheet</li></ul> <b><u>Practical Activity:</u></b> Select proper sheet for given job	Theory- 02 Hrs  Practical- 09 Hrs  Total- 11 Hrs	<ul style="list-style-type: none"><li>Safety goggles</li><li>Gloves</li><li>Safety helmet</li><li>Safety mask</li><li>Safety Shoes</li></ul>	Training Workshop
<b>LU2.</b> Make U- Joint with the sheet	<b>Trainee will be able to</b> <ul style="list-style-type: none"><li>Mark the given sheet for cutting and bending</li><li>Cut the required sheet using Tin Cutter</li></ul>	Describe the types of joints	Theory- 02 Hrs  Practical- 09 Hrs	<ul style="list-style-type: none"><li>Safety goggles</li><li>Gloves</li><li>Safety helmet</li><li>Safety mask</li><li>Safety Shoes</li><li>Hacksaw</li><li>Chisel</li><li>Hammer</li></ul>	Training Workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	<ul style="list-style-type: none"> <li>Bend the sheet (U-shape)</li> </ul>	<b><u>Practical Activity:</u></b>  Bend the sheet in U-Shape and joint it	Total-  11 Hrs	<ul style="list-style-type: none"> <li>Metal shear</li> <li>Bending roller</li> </ul>	
<b>LU3</b>  Make the Hopper with given sheet	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Mark the given sheet for cutting and bending</li> <li>Cut the required sheet</li> <li>Make the hopper with given sheet</li> </ul>	<ul style="list-style-type: none"> <li>Describe the gauge and material of the sheet for hopper</li> </ul> <b><u>Practical Activity:</u></b>  Make the hopper with given sheet	Theory-  01 Hrs  Practical-  09 Hrs  Total-  10 Hrs	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Gloves</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Hacksaw</li> <li>Chisel</li> <li>Hammer</li> <li>Metal shear</li> <li>Bending roller</li> <li>Steel foot rule</li> <li>Divider</li> <li>Angel protector</li> <li>Wooden hammer</li> </ul>	Training Workshop
<b>LU4</b>  Make job (L Shape/T Shape)	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Mark the given sheet for cutting and bending</li> <li>Cut the required sheet</li> </ul>	Describe the joining process for L and T shape joint of sheet.	Theory-  01 Hrs  Practical-	<ul style="list-style-type: none"> <li>Safety goggles</li> <li>Gloves</li> <li>Safety helmet</li> <li>Safety mask</li> <li>Safety Shoes</li> <li>Chisel</li> </ul>	Training Workshop



**National Curriculum Level-2 in Agricultural Machinery Technology**



	<ul style="list-style-type: none"><li>• Bend the sheet using bending press ( L shape)</li><li>• Make a job with sheet (T shape)</li></ul>	<b><u>Practical Activity:</u></b>  Bend the sheet and prepare L joint	09 Hrs  Total-  10 Hrs	<ul style="list-style-type: none"><li>• Hammer</li><li>• Metal shear</li><li>• Steel foot rule</li></ul>	
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## National Curriculum Level-2 in Agricultural Machinery Technology



### Module: 0716-MVS&A-13      Use tillage implements

**Overview:** After this Module candidate will be able to produce good soil conditions for crop establishment and initial shoot and root development by using various implements.

**Duration: 80 Hours**

**Theory: 17 Hours**

**Practice: 63 Hours**

**Credit Hours: 8**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b>  Identify tillage implements	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>Identify primary tillage implements (subsoiler, chisel plough, moldboard plough, disc plough)</li> <li>Identify secondary tillage implements (Harrows, rotavator, Cultivator, Ridgers)</li> <li>Identify minimum (zero) tillage implements</li> <li>Draw sketch of tillage</li> </ul>	Differentiate between primary and secondary tillage implements  <u><b>Practical Activity:</b></u>  Identify the soil preparation implements	Theory- 03 Hrs  Practical- 9 Hrs  Total- 12 Hrs	<ul style="list-style-type: none"> <li>Cultivator</li> <li>Chisel</li> <li>Moldboard plough</li> <li>Disk harrow</li> <li>Rotator</li> </ul>	Training Workshop/Field



## National Curriculum Level-2 in Agricultural Machinery Technology



	implements <ul style="list-style-type: none"> <li>Label the sketch of tillage implements</li> </ul>				
<b>LU2.</b>  Use tillage implements	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Select the tillage implements according to task</li> <li>Calibrate tillage implements as per requirements</li> <li>Use primary tillage implements</li> <li>Use secondary tillage implements</li> <li>Use minimum (zero) tillage implements</li> </ul>	Enlist primary tillage implements  Enlist secondary tillage implements  <u><b>Practical Activity:</b></u>  Attach the tillage implement with tractor  Operate the tillage implement	Theory- 07 Hrs  Practical- 36 Hrs  Total- 43 Hrs	<ul style="list-style-type: none"> <li>Cultivator</li> <li>Chisel</li> <li>Moldboard plough</li> <li>Disk harrow</li> <li>Rotavator</li> </ul>	Training Workshop/Field
<b>LU3</b>  Maintain tillage implements	<b>Trainee will be able to</b> <ul style="list-style-type: none"> <li>Maintain primary tillage implements</li> <li>Maintain secondary tillage implements</li> </ul>	Describe the periodic maintenance of tillage implements  <u><b>Practical Activity:</b></u>	Theory- 07Hrs  Practical- 18 Hrs  Total- 25 Hrs	<ul style="list-style-type: none"> <li>Cultivator</li> <li>Chisel</li> <li>Moldboard plough</li> <li>Disk harrow</li> <li>Rotavator</li> <li>Spanner</li> <li>Gear Oil</li> </ul>	Training Workshop/Field





**National Curriculum Level-2 in Agricultural Machinery Technology**



	<ul style="list-style-type: none"><li>• Maintain minimum (zero) tillage drill implements</li></ul>	Service the rotavator		<ul style="list-style-type: none"><li>• Cotton waste</li><li>• Kerosene oil</li><li>• Torque wrench</li></ul>	
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## National Curriculum Level-2 in Agricultural Machinery Technology



### Module: 0716-MVS&A-14      Maintain occupational health and safety

**Objective:** After this Competency Standard, the trainee will be able to develop skill and competence required to maintain Occupational Health and Safety and take remedial measures to deal with the emergencies in a professional manner, thus minimizing the losses and providing a safe and healthy working environment.

**Duration: 30 Hours**

**Theory: 6 Hours**

**Practice: 24 Hours**

**Credit Hours: 3**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
<b>LU1.</b> Maintain First-aid Box	<b>Trainee will be able to:</b> <ul style="list-style-type: none"> <li>• Ensure availability of first aid box</li> <li>• Check first aid box for requisite emergency</li> <li>• Check expiry of medicines</li> <li>• Perform first aid treatment against electric shocks</li> <li>• Perform first aid treatment/bandages</li> </ul>	<ul style="list-style-type: none"> <li>• First aid treatment methods including methods of resuscitation</li> <li>• Types of hazards that are most likely to cause harm to health and safety</li> <li>• hazards at workplace</li> <li>• Techniques and methods to identify the risks of hazards at workplace</li> </ul> <p><b><u>Practical Activity:</u></b></p>	Theory- 01Hrs  Practical- 03 Hrs  Total- 04 Hrs	<ul style="list-style-type: none"> <li>• Self-contained breathing apparatus</li> <li>• Fall protection (such as personal fall arrest systems, harnesses and lanyards)</li> <li>• Head protection (such as hard hats)</li> <li>• Hearing Protection Equipment (earplugs and earmuffs)</li> <li>• Foot protection (such as boots with metatarsal guards and puncture-resistant soles)</li> </ul>	Class Room and workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	against minor injuries.	<ul style="list-style-type: none"> <li>Identify different sign and symbols of occupational health and safety that are used at the workplace for various job functions</li> <li>Use personal protective equipment</li> </ul>		<ul style="list-style-type: none"> <li>Hand protection (such as gloves and barrier creams)</li> <li>Body Protection (such as high-visibility vests, coveralls, welding</li> </ul>	
<b>LU2. Maintain Fire Extinguisher</b>	<p><b>Trainee will be able to:</b></p> <ul style="list-style-type: none"> <li>Check expiry of fire extinguisher</li> <li>Operate fire extinguisher</li> <li>Replace fire extinguisher</li> <li>Ensure that the fire brigade is at stand by(for major emergency</li> </ul>	<ul style="list-style-type: none"> <li>Safety reporting procedures and documentation</li> <li>Personal Protective Equipment use</li> <li>First aid treatment methods including methods of resuscitation</li> <li>Fire-fighting methods</li> <li>Safe methods of handling heavy loads</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>Perform work safely</li> <li>Use personal protective equipment</li> <li>Identify potential hazards</li> </ul>	<p>Theory- 01Hrs</p> <p>Practical- 03 Hrs</p> <p>Total- 04 Hrs</p>	<ul style="list-style-type: none"> <li>Self-contained breathing apparatus</li> <li>Fall protection (such as personal fall arrest systems, harnesses and lanyards)</li> <li>Head protection (such as hard hats)</li> <li>Hearing Protection Equipment (earplugs and earmuffs)</li> <li>Foot protection (such as boots with metatarsal guards and puncture-resistant soles)</li> <li>Hand protection (such as gloves and barrier creams)</li> <li>Body Protection (such as high-</li> </ul>	Class Room, workshop and field visit



**National Curriculum Level-2 in Agricultural Machinery Technology**



				visibility vests, coveralls, welding , torque wrench) • Engine Petrol	
<b>LU3.</b> Ensure Safeguard of Machines	<ul style="list-style-type: none"> <li>• Maintain radiator shield</li> <li>• Maintain alternator fan shield</li> <li>• Maintain heat resister material on silencer</li> <li>• Cover main circuit breaker</li> <li>• Lock canopy doors</li> </ul>	<ul style="list-style-type: none"> <li>• Safty in machine operation</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>• Maintain alternator fan shield</li> <li>• Maintain heat resister material on silencer</li> <li>• Cover main circuits breaker</li> </ul>	Theory- 0.5Hrs Practical- 03 Hrs Total- 3.5 Hrs	<ul style="list-style-type: none"> <li>• Emergency plan</li> <li>• Instruction Board</li> <li>• Emergency equipment's</li> <li>• Ambulance</li> </ul>	
<b>LU4.</b> Adopt company policies and procedures	<ul style="list-style-type: none"> <li>• Ensure company's safety policy</li> <li>• Adopt company safety procedure</li> <li>• Advocate worker with company safety policy</li> <li>• Implement Safety sign board as per standard</li> </ul>	<ul style="list-style-type: none"> <li>• Safety in machine operation</li> <li>• What are company safety policy</li> </ul> <b>Practical Activity:</b> <ul style="list-style-type: none"> <li>• Demonstrate safety implementation</li> <li>• Demonstrate company safety policy</li> </ul>	Theory- 01Hrs Practical- 03 Hrs Total- 04 Hrs	<ul style="list-style-type: none"> <li>• Emergency plan</li> <li>• Instruction Board</li> <li>• Emergency equipment's</li> <li>• Ambulance</li> </ul>	



## National Curriculum Level-2 in Agricultural Machinery Technology



<b>LU5.</b> Attain health & safety training	<ul style="list-style-type: none"> <li>• Take required health and safety training</li> <li>• Implement work hazardous material information system (WHMIS)</li> <li>• Adopt first aid cardio respiratory, resuscitation and CPR</li> </ul>	<p><b>Theory</b></p> <ul style="list-style-type: none"> <li>• What is health &amp; Hygiene</li> <li>• What are hazardous materials</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>• Perform practice of First aid</li> <li>• Find out hazardous materials</li> <li>• Remove hazardous materials</li> </ul>	<p>Theory- 0.5 Hrs</p> <p>Practical- 06 Hrs</p> <p>Total- 6.5 Hrs</p>	<ul style="list-style-type: none"> <li>• Emergency plan</li> <li>• Instruction Board</li> <li>• Emergency equipment's</li> <li>• Ambulance</li> </ul>	
<b>LU6.</b> Prepare for emergencies	<ul style="list-style-type: none"> <li>• Take emergency response training</li> <li>• Ensure practice of emergency exercises</li> <li>• Check the emergency alarms</li> <li>• Ensure regular practice of gathering the workers in assembly area during the emergency.</li> </ul>	<p><b><u>Theory</u></b></p> <ul style="list-style-type: none"> <li>• What to do in emergency</li> <li>• What is emergency plan</li> <li>• What are components of emergency</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>• Use emergency alarm</li> <li>• practice of emergency exercises</li> </ul>	<p>Theory- 01Hrs</p> <p>Practical- 03 Hrs</p> <p>Total- 04 Hrs</p>	<ul style="list-style-type: none"> <li>• Emergency plan</li> <li>• Instruction Board</li> <li>• Emergency equipment's</li> <li>• Ambulance</li> </ul>	



## National Curriculum Level-2 in Agricultural Machinery Technology



<p><b>LU7. Respond to emergencies</b></p>	<ul style="list-style-type: none"> <li>• Follow emergency plan</li> <li>• Communicate instructions to co workers</li> <li>• Assess risk and determine course of action</li> <li>• Operate emergency equipment and supplies</li> <li>• Ensure that the ambulance is at stand by(for emergency)</li> </ul>	<p><b><u>Theory</u></b></p> <ul style="list-style-type: none"> <li>• What to do in emergency</li> <li>• What is emergency plan</li> <li>• What are components of emergency</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>• Communicate instructions to co workers</li> <li>• Operate emergency equipment and supplies</li> </ul>	<p>Theory- 01Hrs</p> <p>Practical- 03 Hrs</p> <p>Total- 04 Hrs</p>	<ul style="list-style-type: none"> <li>• Emergency plan</li> <li>• Instruction Board</li> <li>• Emergency equipment's</li> <li>• Ambulance</li> </ul>	
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**Module: 0716-MVS&A-15      Maintain Health While Using Computer/Digital Devices At Work**

**Objective:** After this competency standards, the trainee will be able to avoid eye strain, headaches and maintain good posture at workplace.

**Duration: 30 Hours**

**Theory: 6 Hours**

**Practice: 24 Hours**

**Credit Hours: 3**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
LU1 Avoid Eye Strain and Headaches	<p><b>Trainee will be able to:</b></p> <ul style="list-style-type: none"> <li>• Reposition the screen to avoid glare from lights or windows.</li> <li>• Keep the screen clean and use a desk lamp to make it easier to see.</li> <li>• Ensure the screen colours are easy to look at, and that the characters are sharp and legible.</li> <li>• Look away from the screen into the distance for a few moments to relax your eyes(e.g. focus on something 30 metres</li> </ul>	<ul style="list-style-type: none"> <li>• Types of hazards that are most likely to cause harm to health and safety</li> <li>• Health and safety precautions</li> <li>• Techniques and methods to identify the risks of hazards at workplace</li> <li>• Dealing with hazard to avoid any accident or injury</li> </ul>	<p>Theory- 03Hrs</p> <p>Practical- 12 Hrs</p> <p>Total- 15 Hrs</p>	<ul style="list-style-type: none"> <li>• Self-contained breathing apparatus</li> <li>• Fall protection (such as personal fall arrest systems, harnesses and lanyards)</li> <li>• Head protection (such as hard hats)</li> <li>• Hearing Protection Equipment (earplugs and earmuffs)</li> <li>• Foot protection (such as boots with metatarsal guards and puncture-resistant soles)</li> <li>• Hand protection</li> </ul>	Class Room and workshop



## National Curriculum Level-2 in Agricultural Machinery Technology



	away for 30 seconds every 30 minutes)	<p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>• Use personal protective equipment</li> <li>• Identify potential hazards and risk.</li> <li>• Take actions to eliminate the potential hazards</li> </ul>		<p>(such as gloves and barrier creams)</p> <ul style="list-style-type: none"> <li>• Body Protection (such as high-visibility vests, coveralls, welding</li> </ul>	
<b>LU 2.</b> Maintain good posture	<p><b>Trainee will be able to:</b></p> <p><b>P1.</b> Maintain a straight sitting posture</p> <p><b>P2.</b> Stand up and walk around every hour or so, so that you're not sat in the same position all day.</p> <p><b>P3.</b> Slowly lean your torso over to one side of the chair and then the other to stretch your sides and spine.</p> <p><b>P4.</b> Stand up and put your hands together,</p>	<ul style="list-style-type: none"> <li>• Dealing with hazards to avoid any accident or injury</li> <li>• Safety reporting procedures and documentation</li> <li>• Personal Protective Equipment use</li> <li>• Fire-fighting methods</li> </ul> <p><b><u>Practical Activity:</u></b></p> <ul style="list-style-type: none"> <li>• Perform work safely</li> <li>• Report potential hazard and improvements</li> </ul>	<p>Theory- 03Hrs</p> <p>Practical- 12 Hrs</p> <p>Total- 15 Hrs</p>	<ul style="list-style-type: none"> <li>• Self-contained breathing apparatus</li> <li>• Fall protection (such as personal fall arrest systems, harnesses and lanyards)</li> <li>• Head protection (such as hard hats)</li> <li>• Hearing Protection Equipment (earplugs and earmuffs)</li> <li>• Foot protection (such as boots with metatarsal guards and puncture-resistant soles)</li> </ul>	Class Room, workshop and field visit





***National Curriculum Level-2 in Agricultural Machinery Technology***



	elbows out, then slowly twist to the left and then to the right.	<ul style="list-style-type: none"><li>• Ensure housekeeping in order to remove the obstructions and storing tools to minimize the slip trip and fall hazard.</li></ul>		<ul style="list-style-type: none"><li>• Hand protection (such as gloves and barrier creams)</li><li>• Body Protection (such as high-visibility vests, coveralls, welding , torque wrench)</li><li>• Engine Petrol</li></ul>	
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**National Curriculum Level-2 in Agricultural Machinery Technology**



**Curriculum Validation Members:**

	<b>Name</b>	<b>Designation</b>
1	Mr. Sikandar Masood	Director NAVTTC/ Coordinator
2	Mr. Aijaz Ahmad Zia	DACUM Facilitator
3	Dr. Muhammad Naazir Khan Niazi	Chairman, PBTE Lahore
4	Mr Muzamil Hussain	AM, RYK PTEVTA
5	Mr. Muhammad Afzal	Asstt Manager, Millat Tractors, Rawalpindi
6	Engr. Shahzad Amir Rafiq	Instructor GCT, Sahiwal PTEVTA
7	Mr. Jamal Akbar	Associate Prof/Rep., KP TEVTA
8	Engr. Aqib Sharif	Agri. Engg. Rep., Punjab TEVTA
9	Mr.Liaqat Jhamro	Director (Acad)/ Rep., Sindh TEVTA
10	Ms Jawaria Qazi	Web Administrator, PBTE Lahore
11	Mr. Nazakat Hussain	Head, Farm Implement, Millat Tractors
12	Engr. Hira Ishtiaq	Consultant AIMS Engineering, Lahore
13	Mr. Atif Latif	AD, R&D, P-TEVTA



***National Curriculum Level-2 in Agricultural Machinery Technology***



14	Engr. M. Sohaib	Agriculture Engineer, AMTI, Talagang
15	Engr. Tahreem Javed	SuperPark Engineering Lahore



## National Curriculum Level-2 in Agricultural Machinery Technology



### Report Regarding QVC for the Curriculum of the trade Agricultural Machinery Technology (Level 2-5)



#### Minutes of Meeting

A meeting of Qualification Validation Committee for Review and Validation of Curriculum of "Agriculture Machinery Technology" (Level 2-5) was held at Pakistan Industrial Technical Assistance Center, Lahore from 8<sup>th</sup> – 12<sup>th</sup> Nov, 2021. The following activities took place during meeting:

1. Participants were informed about the validation process.
2. Consultation has been made with the relevant experts to confirm the accuracy of the modules and get their feedback and endorsement.
3. Learning elements were rephrased and missing practical activities were added by experts.
4. Material list and learning place were updated according to Learning Unit requirement.
5. Confirmed the accuracy of credit hours for CS as per SBTE, PBTE and NVQF guidelines.
6. The Qualification was finalized in presence of Academic/Industry/TEVTAs/BTEs/QABs to be implemented as a 3 years Diploma (Level 5) course program.
7. The Provisional Qualification awarding bodies in the presence of Provisional TEVTAs approved and recommended for the notification of subject qualification as per approved scheme of study.
8. After incorporation all the recommendations of committee in letter and spirit the revised draft was presented before NAVTC officials.

The following experts has participated in the Curriculum Review and Validation Committee meeting and showed their consent to validated curriculum as found them according to the requirements of the industry:

	Name	Designation	Signature
1	Mr. Sikandar Masood	Director NAVTC/ Coordinator	
2	Mr. Aijaz Ahmad Zia	DACUM Facilitator	
3	Dr. Muhammad Naazir Khan Niazi	Chairman, PBTE Lahore	
4	Mr Muzamil Hussain	AM, RYK PTEVA	
5	Mr. Muhammad Afzal	Asstt Manager, Millat Tractors, Rawalpindi	
6	Engr. Shahzad Amir Rafiq	Instructor GCT, Sahiwal PTEVA	
7	Mr. Jamal Akbar	Associate Prof/Rep., KP TEVTA	
8	Engr. Aqib Sharif	Agri. Engg. Rep., Punjab TEVTA	
9	Mr. Liaqat Jhamro	Director (Acad)/ Rep., Sindh TEVTA	
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