

# Model Curriculum

## Tractor Operator

**SECTOR: AGRICULTURE & ALLIED**  
**SUB-SECTOR: AGRICULTURE CROP PRODUCTION**  
**OCCUPATION: FARM MACHINERY AND EQUIPMENT  
OPERATION AND MAINTENANCE**  
**REF ID: AGR/Q1101, v1.0**  
**NSQF LEVEL: 4**



**Certificate**

**CURRICULUM COMPLIANCE TO  
QUALIFICATION PACK – NATIONAL OCCUPATIONAL  
STANDARDS**

is hereby issued by the

**AGRICULTURE SKILL COUNCIL OF INDIA**

for the

**MODEL CURRICULUM**

Complying to National Occupational Standards of  
Job Role/Qualification Pack: **'Tractor Operator' OP No. 'AGR/Q.1101 NSQF Level 4'**

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Date of Issuance: March 15<sup>th</sup>, 2015  
Valid up to: March 31<sup>st</sup>, 2016  
*\* Valid up to the next review date of the Qualification Pack*

  
S. S. Arora  
Authorised Signatory  
(Agriculture Skill Council of India)

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# Tractor Operator

## CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Tractor Operator”, in the “Agriculture & Allied” Sector/Industry and aims at building the following key competencies amongst the learner

<b>Program Name</b>	<b>Tractor Operator</b>		
<b>Qualification Pack Name &amp; Reference ID. ID</b>	AGR/Q1101, v1.0		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites to Training</b>	12th standard preferred		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li>• <b>Identify/familiarize with tools and equipments:</b> Identification, selection and use of tools and equipments for various operations like ploughing, land levelling, sowing, intercultural operations, harvesting etc</li> <li>• <b>Handle routine services of Tractor:</b> checking of all the parts of the Tractor and set ready for the operation</li> <li>• <b>Care and maintenance:</b> check and set the standards, regular check, carry out minor repairs, maintain and store tools, equipments</li> </ul> <p><b>Practice health &amp; safety at the work place:</b> Well versed with health and safety measures in terms of personal safety and others as well.</p>		

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Tractor Operator” Qualification Pack issued by “Agriculture Skill Council of India”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<b>Introduction</b>  <b>Theory Duration</b> (hh:mm) 3:00  <b>Practical Duration</b> (hh:mm) 2:00  <b>Corresponding NOS Code</b>	<ul style="list-style-type: none"> <li>Understand General Discipline in the class room (Do's &amp; Don'ts)</li> <li>Understand Role of a Tractor Operator</li> <li>Learn Basic skills of communication</li> <li>Learn Basic reading capabilities to enable reading of signs, notices and/or cautions at site.</li> </ul>	Laptop, white board, marker, projector
2	<b>Introduction to Tractors</b>  <b>Theory Duration</b> (hh:mm) 30:00  <b>Practical Duration</b> (hh:mm) 15:00  <b>Corresponding NOS Code</b>	<ul style="list-style-type: none"> <li>Use of Tractors in Agriculture</li> <li>Familiarize with Tractor Parts and activities related to tractor operator</li> <li>Nomenclature of different parts of Tractor</li> <li>Understand Working procedure and difference between two/four stroke petrol/diesel engine</li> <li>Understand Lubrication system and its types</li> <li>Familiarize with Cooling system and types</li> <li>Gain knowledge about Fuel supply layout of petrol/diesel engine</li> <li>Learn Introduction to clutch, gear box, differential power converter and power take off</li> <li>Familiarize Tyre size and rotation</li> <li>Familiarize General tyre defects</li> <li>Calculate the cost of Operation and Hiring charges</li> </ul>	Laptop, white board, marker, projector, tractor, trolley, implements
3	<b>Operation of the Tractor</b>  <b>Theory Duration</b> (hh:mm) 25:00  <b>Practical Duration</b> (hh:mm) 50:00  <b>Corresponding NOS Code</b> AGR/No801	<ul style="list-style-type: none"> <li>Perform daily checks</li> <li>Check replenish/top up lubricating oil, brake fluid, engine coolant, battery electrolyte transmission/hydraulic oil</li> <li>Adjust clutch &amp; brake paddle</li> <li>Understand the Ballasting process and its importance</li> <li>Operate PC &amp; DC levers as per the need</li> <li>Proper Gear and RPM selection</li> <li>Select proper implement and trailer for a specific function</li> <li>Land preparation requirement and do the land opening</li> <li>Adjusting Tractor Implements- hitching &amp; unhitching, lateral &amp; horizontal</li> </ul>	Laptop, white board, marker, projector, tractor, trolley, implements

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		adjustments • Operate the Tractor with and without implement • Follow Rules for Tractor driving	
4	<b>Tractor Maintenance</b>  <b>Theory Duration</b> (hh:mm) 20:00  <b>Practical Duration</b> (hh:mm) 35:00  <b>Corresponding NOS Code</b> AGR/No802	<ul style="list-style-type: none"> <li>• Check and maintain fluids regularly/ lubrication points</li> <li>• Ensure right tyre pressure</li> <li>• Check belts and hoses</li> <li>• Brake and clutch adjustment</li> <li>• Check working of all the electrical systems and gauges</li> <li>• Avoid overloading</li> <li>• Attachment and detachment of Implements</li> <li>• Clean/replace air cleaner filter, oil filter and fuel filters</li> <li>• Apply grease to parts through nipple</li> <li>• Clean check electrical system in petrol engine and adjust spark plug</li> <li>• Charging of battery</li> <li>• Care and maintenance</li> <li>•</li> </ul>	Laptop, white board, marker, projector, tractor, washing unit, filer, wrench
5	<b>Maintain Health &amp; Safety at the work place</b>  <b>Theory Duration</b> (hh:mm) 10:00  <b>Practical Duration</b> (hh:mm) 10:00  <b>Corresponding NOS Code</b> AGR/Ng903	<ul style="list-style-type: none"> <li>• Maintain a clean &amp; efficient workplace</li> <li>• Render appropriate emergency procedures</li> <li>• Reporting time to time to appropriate person.</li> <li>• Practice General safety and first aid</li> </ul>	Laptop, white board, marker, projector, safety shoes, goggles, first aid box, fire extinguisher
	<b>Total Duration:</b>  <b>Theory Duration</b> (hh:mm) <b>88:00</b>  <b>Practical Duration</b> (hh:mm) <b>112:00</b>	<b>Unique Equipment Required:</b> Laptop, white board, marker, projector, tractor, trolley, implements, hydraulic jack, grease pump/gun, oil can, tyre pressure gauge, wheel balancer, spanner set, washing unit, shoes, goggles, fire extinguisher, first aid box	

Grand Total Course Duration: **200 Hours, 0 Minutes**

*(This syllabus/ curriculum has been approved by Agriculture Skill Council of India)*

## Trainer Prerequisites for Job role: "Tractor Operator" mapped to Qualification Pack: "AGR/Q1101, v1.0"

Sr. No.	Area	Details
1	<b>Description</b>	Trainer is responsible for educating the trainees - basic repairs wherever feasible and is necessary and various agriculture activities as per the need.
2	<b>Personal Attributes</b>	Trainer should be Subject Matter Expert. He/ she should have leadership skills, good communication skills, observation skills
3	<b>Minimum Educational Qualifications</b>	Diploma in Agriculture Engineering, Bachelor Degree
4a	<b>Domain Certification</b>	Certified for Job Role: <u>"Tractor Operator"</u> mapped to QP: <u>"AGR/Q1101, v1.0"</u> . Minimum accepted score is 80%.
4b	<b>Platform Certification</b>	Certified for the Job Role: "Trainer", mapped to the Qualification Pack: <u>"SSC/Q1402"</u> . Minimum accepted score is 70%
5	<b>Experience</b>	<ul style="list-style-type: none"> <li>• Post Graduate( Agriculture Engineering/Farm Mechanization) with experience of 1 Year</li> <li>• Graduate (Agriculture Engineering/Farm Mechanization) with experience of 3+ Years</li> <li>• Diploma with relevant experience of 5+ Years</li> <li>• Certificate course in Driver &amp; Tractor Operator Training having experience of 7+ Years.</li> </ul>



### Annexure: Assessment Criteria

<b>Assessment Criteria</b>	
<b>Job Role</b>	Tractor Operator
<b>Qualification Pack</b>	AGR/Q1101, v1.0
<b>Sector Skill Council</b>	Agriculture

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in aggregate
6	The marks are allocated PC wise; however, every NOS will carry a weight age in the total marks allocated to the specific QP

Assessable Outcome	Assessment Criteria	Total Marks (300)	Out Of	Marks Allocation	
				Theory	Skills Practical
1. AGR/N 0037 – Operation of the tractor	PC.1 Lubricate rear axle bearing	120	5	2	3
	PC.2 Check engine oil level		4	2	2
	PC.3 Check coolant level		4	2	2
	PC.4 Drain water and sediment from fuel filter		4	2	2
	PC.5 Lubricate tie rod ends		5	2	3
	PC.6 Lubricate Steering spindles		5	3	2
	PC.7 Lubricate front axle pivot pin		5	3	2
	PC.8 Use of ballasting as per the need		5	3	2
	PC.9 Operate PC & DC levers as per the need		5	3	2
	PC.10 Do proper gear & RPM selection		5	2	3
	PC.11 Classify tillage implements into Primary tillage implements, Secondary Tillage implements, levelling equipment and trailer		4	2	2
	PC.12 Select proper implement for a specific function		4	2	2
	PC.13 Take precautions before using Implements and Trailer		5	2	3
	PC.14 Select and suggest the implements as per the need of the farmer		5	3	2
	PC.15 Take up the following function:			0	0
• Reducing ped size	4	2	2		
• Weed control	4	2	2		
• Incorporation of fertilizers	4	2	2		

	• Puddling		4	2	2
	• Leveling soil surface		3	1	2
	• wheel track adjustment		4	2	2
	• Do sway chain adjustment		4	2	2
	• Position and adjust the Centre link		4	2	2
	• Measure wheel slippage		4	2	2
	PC.1 Do Lateral & horizontal adjustments of Implements		10	5	5
	PC.2 Do Hitching and unhitching the implement from tractor		10	5	5
	<b>Total</b>		<b>120</b>	<b>60</b>	<b>60</b>
2. AGR / N 0038 – Tractor Maintenance	PC.1 Follow intervals for routine maintenance	<b>120</b>	10	5	5
	PC.2 Lubricate different parts of the tractor		10	5	5
	PC.3 Follow basic operating instructions		10	5	5
	PC.4 Procure maintenance tools that are certified for such operations from a recognized body.		5	2	3
	PC.5 Check the engine oil		5	2	3
	PC.6 Check the transmission fluid/ hydraulic oil		5	2	3
	PC.7 Check the coolant in the radiator/ reservoir tank		10	5	5
	PC.8 Ensure all the tyres have the right inflation pressure as per the usage of the tractor		5	2	3
	PC.9 If fittings or connections are leaking, tighten them or replace the seals.		10	5	5
	PC.10 Ensure proper adjustment of the brake and clutch, and make sure the brakes and clutches free play are adjusted properly		10	5	5

	PC.11 Ensure that brake paddle latch should be engaged while driving on road.		10	5	5
	PC.12 Always ensure the right temperature, oil pressure and hour meter		10	5	5
	PC.13 Ensure working of headlights, brake lights and horns.		5	2	3
	PC.14 Always use a recommended load as suggested by the manufacturer.		5	5	0
	PC.15 Attachment and detachment of Implements		10	5	5
	<b>Total</b>		<b>120</b>	<b>60</b>	<b>60</b>
3. AGR / N 09903 - Maintain Health & Safety at the workplace	PC1. undertake basic safety checks before operation of all machinery and vehicles and hazards are reported to the appropriate supervisor	<b>60</b>	2	1	1
	PC2. work for which protective clothing or equipment is required is identified and the appropriate protective clothing or equipment is used in performing these duties in accordance with workplace policy.		2	1	1
	PC3. read and understand the hazards of use and contamination mentioned on the labels of pesticides/fumigants etc		5	2	3
	PC4. assess risks prior to performing manual handling jobs, and work according to currently recommended safe practice.		5	3	2
	PC5. use equipment and materials safely and correctly and return the same to designated storage when not in use		5	2	3
	PC6. dispose of waste safely and correctly in a designated area		2	1	1
	PC7. recognise risks to bystanders and take action to reduce risk associated with jobs in the workplace		5	3	2
	PC8. perform your work in a manner which minimizes environmental damage all procedures and work instructions for controlling risk are followed closely.		2	1	1

PC9. report any accidents, incidents or problems without delay to an appropriate person and take necessary immediate action to reduce further danger.			2	1	1
PC10. follow procedures for dealing with accidents, fires and emergencies, including communicating location and directions to emergency.			5	2	3
PC11. follow emergency procedures to company standard / workplace requirements			5	2	3
PC12. use emergency equipment in accordance with manufacturers' specifications and workplace requirements			5	3	2
PC13. provide treatment appropriate to the patient's injuries in accordance with recognized first aid techniques			5	3	2
PC14. recover (if practical), clean, inspect/test, refurbish, replace and store the first aid equipment as appropriate			6	3	3
PC15. report details of first aid administered in accordance with workplace procedures			4	2	2
			<b>60</b>	<b>30</b>	<b>30</b>
	<b>Total</b>	<b>300</b>	<b>300</b>	<b>150</b>	<b>150</b>
	<b>Percentage Weightage:</b>			<b>50%</b>	<b>50%</b>
	<b>Minimum Pass% to qualify (aggregate):</b>			<b>60%</b>	