

Qualification Pack : Tractor Operator

CURRICULUM/SYLLABUS

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

1. Familiarity with daily checks, ballasting process	5. Knowledge of land preparation requirement and land opening
2. Understand the use of PC and DC levers	6. Familiarity with tractor owner’s manual and proper use of tools
3. Familiarization with gear and engine speed selection	7. Checking and maintenance of liquid and lubrication points, tyre pressure, belts and hoses, brake and clutch and electrical systems and gauges.
4. Familiarity with tractor-operated implements and trailer and their uses	8. Understanding of proper attachment and detachment of implements and tips for avoiding overloading of tractors

This course encompasses 2 out of 2 National Occupational Standards (NOS) of “Tractor Operator” Qualification Pack issued by “Agriculture Skill Council of India”.

S. No	Topic/Module	Duration (in Hours)	Key Learning Outcomes	Corresponding NOS Code
1	Operation of the Tractor	73.5	<ul style="list-style-type: none"> Familiarity with daily checks, ballasting process, use of PC & DC levers and gear & engine speed selection and fuel saving tips in various application of tractor Knowledge of implements, trailer, land preparation requirements proper hitching and use of tractor-operated implements Understanding dash board and tractor controls and levers Familiarity with safety requirements recommended by the manufacturers, safe methods of using tools, first aid and stickers and safety logos Optionally, understanding of reading and writing skills, maintenance of effective working relationships, effective communication professional skills related to nature of job 	AGR / N 0037
2	Tractor Maintenance	52.5	<ul style="list-style-type: none"> Understanding of the content of tractor owner’s manual Familiarity with right kind of tools needed for tractor maintenance Familiarity with the procedure for checking oil and coolant level and maintenance of appropriate inflation pressure in front and rear tractor tyres as 	AGR / N 0038

			<p>per the usage of the tractor</p> <ul style="list-style-type: none"> • Understand checking of belts & hoses, adjustment of brake and clutch and checking of all the electrical systems and gauges. • Familiarity with recommended load as suggested by the manufacturer to avoid overloading of tractor engine. • Familiarity with agro climatic zones and various climatic parameters 	
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Total Programme Duration: 126 **Hours**

(This syllabus/ curriculum has been approved by Agriculture Sector Council of India (ASCI))

Session Plan Design

Program Name		Tractor Operator					
Name of Client		-					
Version No.		AGR/Q 0401 – 1.0 - NSDC		Version Update Date		March, 2014	
Pre-requisites to Training		10 th Standard appeared or pass					
Training Outcomes		1. Familiarity with daily checks, ballasting process 2. Understand the use of PC and DC levers 3. Familiarization with gear and engine speed selection 4. Familiarity with tractor-operated implements and trailer and their uses 5. Knowledge of land preparation requirement and land opening 6. Familiarity with tractor owner's manual and proper use of tools 7. Familiarity with tractor-operated implements and trailer and their uses 8. Understanding of proper attachment and detachment of implements and tips for avoiding overloading of tractors					
Sl. No.	Module	Sessions	Objectives	Methodology	Training Tools/Aids	Duration (hours)	
						Theory	Practical
1.	Operation of the Tractor	Session 1 : Introduction to tractor system	<ul style="list-style-type: none">• Familiarization with the tractor engine• Explain function, principle of operation and constructional features of various tractor systems• Practical demonstration for working of tractor assemblies/sub-assemblies	<ul style="list-style-type: none">• Standard class room lecture• Using power point presentation• Using charts, transparencies• E-Learning tools• Practical demonstration	<ul style="list-style-type: none">• Tractor, 35 hp• Tractor trailer• M. B. Plough• Cultivator• Thresher (optional)• Tools including DE set, Box spanner set, ring spanner set, set , screw drivers, pliers, circlip plier and other general purpose tools• Tool box• Fast moving spares and	1.25	4
		Session 2 : Do the daily checks	<ul style="list-style-type: none">• Familiarity with the checking and topping up engine oil and coolant• Familiarity with greasing points and greasing procedures			1.25	4
		Session 3 : Ballasting importance and process	<ul style="list-style-type: none">• Understand need of ballasting• Learn process of cast iron ballasting• Learn process of water			1.25	4

			ballasting		material for routine maintenance of tractor		
		Session 4 : Importance and use of PC & DC levers	<ul style="list-style-type: none"> Familiarization with the placement and importance of PC & DC levers Understand the working of both the levers 		<ul style="list-style-type: none"> Furniture including table, chairs, almirah, racks etc 		
		Session 5 : Gear and RPM Selection	<ul style="list-style-type: none"> Understand the importance of number of gears and their range of operation Understand the hand-operated and foot accelerators Learn the procedure for change of gears and throttle position to match with the type of jobs being performed with the tractor 			1.25	4
		Session 6 : Implements and Trailer	<ul style="list-style-type: none"> Understanding of various primary and secondary tillage implements Familiarity with leveling equipment and trailers Understand selection of proper implement for specific operation and precautionary measures before using implements and trailer 			1.25	4
		Session 7 : Land Preparation Requirement and Land Opening	<ul style="list-style-type: none"> Understand selection of implement as per the need of the farmer Familiarity with various agricultural operations including reduction of clod size, weed control, incorporation of fertilizers, puddling and leveling soil surface Understand front and rear 			1.25	4

			<p>wheel track adjustment, sway chain adjustment and centre link adjustment</p> <ul style="list-style-type: none"> • Understand the effect of wheel slippage and its methods of measurement 					
		Session 8 : Use of Implement for Tractor	<ul style="list-style-type: none"> • Understand lateral and horizontal adjustments of implements • Knowledge of proper hitching and unhitching the implement from the tractor 			1.25	4	
		Session 9 : Agro Climatic Zone	<ul style="list-style-type: none"> • Knowledge of agro climatic zones and further division into sub-zones • Understanding of various climatic factors that affect field operations 			1.25	4	
		Session 10 : Understanding of Implements & Knowing Fuel Saving Tips	<ul style="list-style-type: none"> • Understand the significance of width and depth of operation and tips to maintain proper depth and width during field operation • Understand mast height and its significance • Familiarity with fuel saving tips during various tractor operations 			1.25	4	
		Session 11 : Understanding Dash Board	<ul style="list-style-type: none"> • Understand the various functions displayed on the tractor dashboard • Familiarity with the purpose and usage of these functions 			1.25	4	
		Session 12 : Tractor Controls and Levers	<ul style="list-style-type: none"> • Familiarity with the various tractor controls and levers located in front of the operator's seat, left side and right side of the operator's seat 			1.25	4	

			<ul style="list-style-type: none"> Understanding of the purpose, use and functions of various controls and levers 				
		Session 13 : Safety	<ul style="list-style-type: none"> Understanding the purpose of a driving license Familiarity with manufacturer's recommendations for safe operation of tractor Familiarization with safe methods of handling the tools Familiarity with the first aid and stickers and safety logos 			1.25	4
		Session 14 : Core Skills/Generic Skills and Professional Skills (Optional)	<ul style="list-style-type: none"> Knowledge of reading and writing skills Skill in clear and effective communication with various people Knowledge and understanding of how to make decisions pertaining to the concerned area of work and identification of problems and suitable preventive actions 			1.25	4
2.	Tractor Maintenance	Session 1 : Introduction to need of preventive maintenance and familiarization with lubricants	<ul style="list-style-type: none"> Understand need of preventive maintenance Understanding of elements of periodical maintenance Familiarity with lubricating oils and greases used for tractor maintenance 	<ul style="list-style-type: none"> Standard class room lecture Using power point presentation Using charts, transparencies E-Learning tools Practical demonstration 	<ul style="list-style-type: none"> Tractor, 35 hp Tractor trailer M. B. Plough Cultivator Thresher (optional) Tools including DE set, Box spanner set, ring spanner set, set , screw drivers, pliers, circlip 	1.25	4
		Session 2 : Study and follow of owner's manual	<ul style="list-style-type: none"> Familiarity with the content o owner's manual Understanding of basic operating instructions Understanding of schedule and intervals of routine 			1.25	4

			maintenance and lubrication of different parts of the tractor		plier and other general purpose tools		
		Session 3 : Obtaining Certified Tools	<ul style="list-style-type: none"> Understanding of different types of certified / recommended tools needed for tractor maintenance Understanding of proper use of tools 		<ul style="list-style-type: none"> Tool box Fast moving spares and material for routine maintenance of tractor 	1.25	4
		Session 4 : Check and Maintain Fluids Regularly/ Lubrication Points	<ul style="list-style-type: none"> Familiarity with checking and topping up of engine oil Familiarity with checking and topping up of transmission/ hydraulic oil Familiarity with checking and topping up of coolant in the radiator/reservoir tank 		<ul style="list-style-type: none"> Furniture including table, chairs, almirah, racks etc 	1.25	4
		Session 5 : Ensure Right Tyre Pressure	<ul style="list-style-type: none"> Familiarity with general constructional features and sizes of tractor front and rear tyres Understanding of recommended inflation pressures in front and rear tyres as per usage of the tractor 			1.25	4
		Session 6 : Check Belts & Hoses	<ul style="list-style-type: none"> Knowing hoses and belts fitted in different components of the tractor Knowledge of inspection of hoses, belts and other connections and rectification of defects and replacement of defective seals, hoses & belts. 			1.25	4
		Session 7 : Brake and clutch Adjustment	<ul style="list-style-type: none"> Understanding of general constructional features of brake and clutch and various adjustments required for their proper use 			1.25	4

			<ul style="list-style-type: none"> • Understanding of adjustment of brake and clutch free play • Understanding the use of brake paddle latch and ensuring its proper engagement/locking while driving tractor on road. 				
		Session 8 : Check Working of all the Electrical Systems and Gauges	<ul style="list-style-type: none"> • Familiarization with all electrical systems and gauges fitted on the tractor and their function • Understanding the working of lights and horn and remedial measures in case of defects • Familiarity with the electrical gauges, their defects and remedies 			1.25	4
		Session 9 : Avoid Overloading	<ul style="list-style-type: none"> • Understanding of different types and sizes of implements and their matching with the tractor • Understanding of different types and sizes of trailers and their matching with the tractor • Understanding selection of recommended type and size of implement and matching trailer to avoid overloading of tractor. 			1.25	4
		Session 10 : Attachment and Detachment of Implements	<ul style="list-style-type: none"> • Familiarity with Category 1 and Category 2 types of three point linkage • Understanding how to attach trailed, semi-mounted and mounted implements with 			1.25	4

			the tractor • Understanding the techniques of detachment of implements from the tractor				
Note : Various aspects of Knowledge and Understanding (K) and Skills (Optional) are already covered under NOS AGR/N0037 – Operation of the Tractor							