

APPRENTICESHIP CURRICULUM (OPTIONAL TRADE)

Automotive

FRONT LINE PRODUCTION RESOURCE

Course Code:

NAPS Non-NAPS

NSQF Level: 4



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Course Details

1.	Course Name	Front Line Production Resource																																					
2.	Course Code																																						
3.	Apprenticeship Training Duration:	Hours: 540	Weeks: 12 Weeks	Total Course Duration: 4290 Hours (24 Months)																																			
	a. Basic Training (Block 1) Duration																																						
	b. On-the-Job Training (Block 2) Duration	Hours: 3750	Weeks: 84 Weeks																																				
4.	Credit	80																																					
5.	NSQF Level (<i>Mandatory for NAPS</i>)	4	NSQC Approval Date: 30/11/2023																																				
6.	Related NSQF aligned qualification details	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">S. No.</th> <th style="width: 10%;">Semester</th> <th style="width: 30%;">QP/ Qualification/ NOS Name (As applicable)</th> <th style="width: 15%;">QP/ NOS Code & Version</th> <th style="width: 10%;">NQR Code</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td rowspan="7" style="text-align: center; vertical-align: middle;">Semester 1</td> <td>Introduction to the job role</td> <td>Bridge Module</td> <td></td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Overview of the organization</td> <td>Bridge Module</td> <td></td> </tr> <tr> <td style="text-align: center;">3.</td> <td>Manage work and resources (Manufacturing)</td> <td>ASC/N9810</td> <td></td> </tr> <tr> <td style="text-align: center;">4.</td> <td>Health Safety and Environment</td> <td>ASC/N0006</td> <td></td> </tr> <tr> <td style="text-align: center;">5.</td> <td>Prepare for machining activities</td> <td>ASC/N3506 ASC/Q3513</td> <td></td> </tr> <tr> <td style="text-align: center;">6.</td> <td>Basic 5S Training</td> <td>ASC/N0021</td> <td></td> </tr> <tr> <td style="text-align: center;">7.</td> <td>Manage shop floor operations and team</td> <td>ASC/N9815</td> <td></td> </tr> </tbody> </table>				S. No.	Semester	QP/ Qualification/ NOS Name (As applicable)	QP/ NOS Code & Version	NQR Code	1.	Semester 1	Introduction to the job role	Bridge Module		2.	Overview of the organization	Bridge Module		3.	Manage work and resources (Manufacturing)	ASC/N9810		4.	Health Safety and Environment	ASC/N0006		5.	Prepare for machining activities	ASC/N3506 ASC/Q3513		6.	Basic 5S Training	ASC/N0021		7.	Manage shop floor operations and team	ASC/N9815	
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		8.	Semester 2	Interpret engineering drawing	ASC/N9805	
		9.		Interact effectively with colleagues, customers and others	ASC/N9802	
		10.		Perform assembly and post-assembly operations	ASC/N3614 ASC/Q3602	
		11.	Semester 3	Perform picking and issuing of material from stores	ASC/N6103	
		12.		Inspect automotive parts, products and processes quality	ASC/N6301	
		13.		Inspect the product quality	ASC/N6303 ASC/N6305	
		14.		Maintain The Product Quality	ASC/N6303 ASC/N6305	
		15.	Semester 4	Perform maintenance of mechanical equipment	ASC/N6813 ASC/Q6802	
16.	Perform maintenance of electrical and electronic systems of the equipment	ASC/N6804 ASC/Q6803				
7.	Brief Job Role Description	<ul style="list-style-type: none"> ● Front Line Production Resource is primarily involved in various machining and inspection work on conventional/manual machines such 				

		<p>as quality verification, minor repair work, change of worn out tools, re-setting of the tools,etc.</p> <ul style="list-style-type: none"> ● involved in assembly of critical components of vehicles and quality check operations performed in automotive manufacturing ● routine and repetitive inspection of the automotive parts, products and related processes to deliver high quality products to customers ● responsible for conducting validation and maintaining quality of the manufactured automotive products and related processes to deliver high quality products to customers. ● performs maintenance of the mechanical parts,electrical and electronic systems of equipment. ● involved in various machining and inspection work on CNC machines such as quality verification, minor repair work, change of worn out tools, re-setting of the tools.
8.	NCO-2015 Code & Occupation (Access the NCO 2015 volumes from: https://labour.gov.in/organizationsofmole/directorate-general-employment-training-dget)	NCO-2015/8211.10
9.	Minimum Eligibility Criteria (Educational and/ or Technical Qualification)	10th Grade pass OR 8th grade pass with two years of NTC
10.	Entry Age for Apprenticeship	18
11.	Training (Suggested but not mandatory)	BPS (Lean manufacturing)

12.	Is the Job Role amendable to Persons with Disability	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, check the applicable type of Disability <input type="checkbox"/> Locomotor Disability <input type="checkbox"/> Leprosy Cured Person <input type="checkbox"/> Cerebral Palsy <input type="checkbox"/> Dwarfism <input type="checkbox"/> Muscular Dystrophy <input type="checkbox"/> Acid Attack Victims <input type="checkbox"/> Blindness <input type="checkbox"/> Low Vision <input type="checkbox"/> Deaf <input type="checkbox"/> Hard of Hearing <input type="checkbox"/> Speech and Language Disability <input type="checkbox"/> Intellectual Disability <input type="checkbox"/> Specific Learning Disabilities <input type="checkbox"/> Autism Spectrum Disorder <input type="checkbox"/> Mental Illness <input type="checkbox"/> Multiple Sclerosis <input type="checkbox"/> Parkinson's Disease <input type="checkbox"/> Hemophilia <input type="checkbox"/> Thalassemia <input type="checkbox"/> Sickle Cell Disease <input type="checkbox"/> Multiple Disabilities Remarks:
13.	Submitting Body Details	Name: Automotive Skills Development Council Head office: E-113, Okhla Industrial Estate Phase- III, New Delhi-110020, Contact Number: 011-42599800
14.	Certifying Body	Automotive Skills Sector Development
15.	Employment Avenues/Opportunities	Jobs Opportunities in private companies: The trainees can get a job in a Industry as Front Line Manager.
16.	Career Progression	Front Line Manager

17.	Trainer's Qualification & Experience:	Diploma (Automobile Engineering/Mechanical Engineering) with 10 years of industry experience and 3 year of training experience in automotive Service OR BE (Automobile Engineering/Mechanical Engineering) with 5 years of industry experience and 2 years of industry experience in automotive Service
	a. Basic Training	
	b. On-the-Job Training	Diploma/BE (Automobile Engineering/Mechanical Engineering) with 10 years of industry experience and 3 year of training experience in automotive Service OR BE (Automobile Engineering/Mechanical Engineering) with 5 years of industry experience and 2 years of industry experience in automotive Service
18.	Curriculum Creation Date	30/11/2023
19.	Curriculum Valid up to Date	30/05/2024

Module Details

S. No	Semester	Module/NOS Name, Code, Version	Learning Outcomes	Assessment Marks		Passing Percentage	
				Th.	Pr.	Th.	Pr.
1.	Semester 1	Introduction to the job role	<ul style="list-style-type: none"> Describe the role and responsibilities of a Front Line Production Resource. Discuss the standard operating procedure. 	35		60%	

		<p>Theory Duration (hh:mm) 08:00</p> <p>OJT Duration (hh:mm) 00.00</p> <p>Corresponding NOS code Bridge Module</p>	<ul style="list-style-type: none"> ● List the various tools, equipment and machines, and their operating techniques, used. ● Needs to be focused: In every organization, the Front Line Production Resource is responsible for producing the required quantity of the product in time in accordance with the delivery Schedule. The quantity to be produced depends on the demand whereas of the time by which the product should be completed is determined by delivering date. ● Production Control: It is the duty of the Front Line Production Resource to use the resources at his disposal in the best possible manner as well as to regulate the operation in such a way that the desired delivery schedule is maintained. It is done by routing, scheduling and inspecting during the production process. ● Quality Control: The main responsibility of the Front Line Production Resource is to manufacture the goods and services within the desired specifications. Though the quality of the finished goods can be ensured by the inspection of finished goods it is better to employ measures, which will minimize the likelihood of producing defective items. ● Analysis & Selection of Production Method: There can be many ways in which manufacturing operation can be executed. Front Line Production Resource should select the most efficient and economical method to perform the operation. ● Plant Layout and Material Handling: The physical arrangement of manufacturing components and the equipment for handling the material during the production process has a considerable effect on the cost of production. The material handling system and the plant layout should be most efficient and economical for the given situation. 				
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			<ul style="list-style-type: none"> ● Proper Inventory Control: Inventory implies all the materials, parts, supplies, tools, and in-process or finished products kept in stocks for some time. The procurement policy of these items requires careful consideration and analysis. The purchases should be planned in economic lot sizes and the time of purchase should be so scheduled that the investment in the inventory is at the lowest possible level. This implies the determination of economic lot sizes and re-orders level. ● Work-Study: Work measurement & method study and techniques are applied to find the relationship between the output of goods and services and the input of human and material resources. The FRONT LINE PRODUCTION RESOURCE should try to find the most appropriate method of performing various operations involved in a ● Particular production process so as to obtain the optimum use of the resource as well as increasing productivity. 				
2.	Semester 1	<p>Overview of the organization</p> <p>Theory Duration</p> <p>(hh:mm)</p> <p>08:00</p> <p>OJT Duration</p> <p>(hh:mm)</p> <p>00.00</p> <p>Corresponding NOS code (Bridge module)</p>	<ul style="list-style-type: none"> ● From this company introduction, new joiners can gain an understanding of the company's values and goals, its products and services, and its commitment to developing sustainable business practices. ● They can also learn about the company's history and its commitment to customer service, as well as the range of industries and markets it serves. ● Through this introduction, new joiners can gain an appreciation for the importance of creating a strong brand identity and an understanding of how businesses can use technology to create a competitive edge. ● Company's Products & its customers 	35		60%	

3.	Semester 1	<p>Manage work and resources (Manufacturing)</p> <p>Theory Duration (hh:mm) 22:00</p> <p>OJT Duration (hh:mm) 120:00</p> <p>Corresponding NOS code ASC/N9810</p>	<p>maintain safe and secure working environment</p> <ul style="list-style-type: none"> ● Identify hazardous activities and the possible causes of risks or accidents in the workplace ● Implement safe working practices for dealing with hazards to ensure safety of self and others ● Conduct regular checks of the machines with support of the maintenance team to identify potential hazards ● Ensure that all the tools/equipment/fasteners/spare parts are arranged as per specifications /utility into proper trays, cabinets, lockers as mentioned in the 5s guidelines/work instructions ● Fulfill daily check sheet to report improvements done and risks identified ● Ensure that relevant safety boards /signs are placed on the shop floor for the safety of self and others ● Report any identified breaches in health, safety and security policies and procedures to the designated person 	35	70	60%	70%
4.	Semester 1	<p>Health Safety and Environment</p> <ul style="list-style-type: none"> ▪ Basic Safety ▪ Fire and Emergency preparedness ▪ Electrical Safety ▪ Chemical Safety <p>Theory Duration</p>	<ul style="list-style-type: none"> ● List workplace hazards and risks ● Use personal protective equipment like safety gloves, safety glasses, safety shoes and safety helmet at workplace. ● Identify activities which can cause potential injury ● Report concerned authorities about the potential risks ● Report concerned authorities about machine breakdowns, damages ● Support the safety team and the supervisor in creating the risk mitigation plan 	35	70	60%	70%

		(hh:mm) 30:00 OJT Duration (hh:mm) 232.00 Corresponding NOS code ASC/N0006	<ul style="list-style-type: none"> ● Follow the instructions given in the equipment manual ● Follow the safety, health and environment related practices ● Follow safety signs placed on the shop floor ● Demonstrate use of fire-fighting equipment ● List the contents of first aid kit. ● Maintain a clean and safe working environment ● Attend all safety and fire drills to be self-aware of safety hazards and preventive techniques ● Maintain high standards of personal hygiene at the work place ● Follow organizational procedure of waste disposal ● Report appropriately to medical officer/ HR in case of self or an employee's illness ● Understand the importance of maintaining a safe and healthy work environment. ● Identify potential hazards, risks and safety measures in the workplace. ● Implement appropriate safety systems and procedures in the workplace. ● Understand the roles and responsibilities of employers and employees in relation to health, safety and environment. ● Develop the necessary skills to protect the health and safety of workers in the workplace. ● Recognize the impact of environmental factors on the health and safety of workers. 				
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			<ul style="list-style-type: none"> ● Demonstrate the ability to identify, evaluate and manage risks associated with health, safety and environment. ● Develop an understanding of the legal and regulatory requirements governing workplace safety and environment. 				
5.	Semester 1	<p>Prepare for machining activities</p> <p>Theory Duration (hh:mm) 30:00</p> <p>OJT Duration (hh:mm) 180.00</p> <p>Corresponding NOS code Mapped to ASC/N3506</p>	<ul style="list-style-type: none"> ● Job orders and engineering drawings and identify the work requirements. ● Explain different types of machining processes. ● Discuss operational fundamentals of conventional and CNC machine. ● List jigs and fixtures, tools, cutting tools, equipment and measuring instruments required during the machining and post-machining work. ● List tooling instructions for fixtures, cutting tools, jigs, gauges etc. ● Discuss machine parameters like cutting speed, depth of cut, feed rate etc. And their impact on output. ● Elucidate the importance of selecting correct lubricant and coolant for machine components. • explain properties and specifications of coolant and lubricant required for machining component. ● Summarize the steps to be performed for checking the tools and equipment before use. ● Summarize the steps to be performed for checking the raw material or input component for the machining work. 	35	70	60%	70%
6.	Semester 2	<p>Basic 5S Training</p> <p>Theory Duration</p>	<ul style="list-style-type: none"> ● Understanding the principles and benefits of 5S: Participants will develop an understanding of how 5S can be used as an effective tool to improve the organization’s efficiency and create a safe and clean working environment. 	35	70	60%	70%

		(hh:mm) 20:00 OJT Duration (hh:mm) 160.00 Corresponding NOS code ASC/N0021	<ul style="list-style-type: none"> ● Recognizing the 5S Steps: Participants will be able to identify and discuss the five steps of the 5S process (Sort, Set in Order, Shine, Standardize, and Sustain). ● Implementing the 5S Steps: Participants will gain an understanding of how to implement the 5S steps in the workplace, including how to organize and label items, how to create a maintenance schedule, and how to monitor and evaluate effectiveness. ● Developing Accountability: Participants will learn how to create an effective 5S implementation plan, as well as how to ensure accountability for following the plan. ● Engaging the Team: Participants will gain insight into how to engage their team in the 5S process, and how to motivate them to sustain the 5S system long-term. 				
7.	Semester 2	Manage shop floor operations and team Theory Duration (hh:mm) 30:00 OJT Duration (hh:mm) 270.00 Corresponding NOS code ASC/N9815:	Manage manpower and material for the shift/line <ul style="list-style-type: none"> ● Allocate manpower based on skill matrix at work station to achieve production targets ● Support shift in charge/process head/shop head in finalizing the shift rosters for the week and month based on the production plan ● Maintain the information on leaves/in-out time and shift/line overtime of the team and share the information with the concerned authorities as per the organizational procedures ● Send inventory requirements to stores and purchase department and follow up with them to ensure the timely/receipt of material (spares, consumables) ● Maintain the movement of material and work piece on the shop floor according to the takt time prescribed in the sop/work plans 	35	70	60%	70%

			<ul style="list-style-type: none"> • Ensure that the operators and helpers have the required tools and equipment at the start of production process • Ensure optimal resource utilization (man, machine and material) and streamlining of activities within the shift <p>Supervise production operations</p> <ul style="list-style-type: none"> • Co-ordinate with other departments like stores, paint shop, assembly line, quality, safety, production planning etc. Regarding resolution of inter-related problems and achieving required production target and quality standards • Implement corrective actions to reduce losses and wastages during shift operation and minimum rejection of components • Prepare daily and monthly production MIS reports to analyse the actual performance with the production target and report the same to production incharge • Verify the production and material movement related data entries in the system (manual/ERP) for the line/shift and ensure correctness of the data • Support the maintenance team in finalizing and executing the preventive maintenance schedule for the shop/line 				
8.	Semester 2	<p>Interpret engineering drawing</p> <p>Theory Duration (hh:mm) 30:00</p>	<p>Identify drawing standards and symbols</p> <p>To be competent, the user/individual on the job must be able to:</p> <ul style="list-style-type: none"> • Interpret geometric dimension and tolerating (GD&T) symbols in the drawings • Interpret symbols of radius, controlled radius, spherical radius, diameter, spherical diameter, 	35	70	60%	70%

		<p>OJT Duration (hh:mm) 150.00</p> <p>Corresponding NOS code ASC/N9805</p>	<ul style="list-style-type: none"> • Square, counter bore, spot face, depth, countersink, “by”, maximum dimension, minimum dimension, reference, dimension origin etc • Identify the sequence of operations which enables the selection and prioritization of the datum read and interpret information from tolerance zone boundaries for part features in terms of shape and size 				
9.	Semester 2	<p>Interact effectively with colleagues, customers and others</p> <p>Theory Duration (hh:mm) 20:00</p> <p>OJT Duration (hh:mm) 190.00</p> <p>Corresponding NOS code ASC/N9802</p>	<p>Manage manpower and material for the shift/line</p> <ul style="list-style-type: none"> • Resolve conflicts within the team members at work to achieve smooth workflow • Guide the team members to follow the organization's policies and procedures • Ensure team goals are given preference over individual goals • Respect personal space of colleagues and customers • Employ different means of communication depending upon the requirement while interacting with others. • Demonstrate using new ways to maintain good relationships with colleagues and supervisor. • Prepare a sample report to send the work status to the supervisor. 	35	70	60%	70%
10.	Semester 2	<p>Perform assembly and post-assembly operations</p>	<p>Prepare for the assembly operations</p> <p>To be competent, the user/individual on the job must be able to:</p>	35	70	60%	70%

		<p>Theory Duration (hh:mm) 32:00</p> <p>OJT Duration (hh:mm) 298.00</p> <p>Corresponding NOS code ASC/N3614</p>	<ul style="list-style-type: none"> ● Ensure that all the measuring instruments, equipment, auto components/parts and sub-assemblies required for the job are in stock, functioning properly and are available on the shop floor ● Select the correct assembly method, equipment and apparatus for conducting the process ● Fill CLRI (clean, lubricate, re-tighten & inspection) check sheet and report to the supervisor about any abnormalities identified and action taken to resolve them ● Ensure that assembly operators and technicians are using calibrated and cleaned tools, measuring instruments and equipment check that assembly apparatus is set properly as per the selected assembly method ● Guide the assembly operators and technicians in setting of the assembly parameters as per the work instructions ● Check all the semi-precision mechanical, pneumatic, hydraulic and electrical parts in the auto components by using the correct methodology as indicated in the work instructions/sops <p>Perform assembly operations</p> <p>To be competent, the user/individual on the job must be able to:</p> <ul style="list-style-type: none"> ● Participate in the warranty analysis activities in the department and provide solutions to set it right ● Follow the takt time prescribed by the process excellence team for every assembly station <p>Conduct quality check of production as per norms</p> <p>To be competent, the user/individual on the job must be able to:</p>				
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			<ul style="list-style-type: none"> ● Ensure that every manufactured vehicle/ aggregate component is checked and tested as per the sop/WI ● Check the assembled auto components as per the control plan, work instructions for product quality ● Inspect the assembled auto components for defects if any, such as in paint, dents, grooves, crack, rough edges etc. On the physical body of the auto component ● Ensure that all the errors are tagged/ marked immediately so that they can be rectified at the earliest ● Ensure that assembly operators and technicians are recording all the test observations and errors in the log books as per the format shared 				
11.	Semester 3	<p>Perform picking and issuing of material from stores</p> <p>Theory Duration (hh:mm) 35:00</p> <p>OJT Duration (hh:mm) 385.00</p> <p>Corresponding NOS code ASC/N6103</p>	<ul style="list-style-type: none"> ● Illustrate layout of material storage locations in each plant. ● Discuss how to collect the information from supervisor about the material picking and issuing tasks. ● List the documents related to dispatch schedule and BOM for product/s being manufactured/shipped. ● List the parts being used for manufacturing of each product. ● Discuss the storage and preservation conditions required for each material. ● List the steps to be performed for selecting and picking the parts from the storage bin of stores. ● List the documents and items such as leaflets for usage, moisture restricting capsules, commercial papers, insurance documents etc. Need to be keep with the spare parts /vehicles /aftermarket dispatches in the packing box. 	35	70	60%	70%

			<ul style="list-style-type: none"> ● Discuss the details such as shipping address with contact details, orientation of box etc. Needed to be mentioned correctly on the box as per WI / customer documentation. ● Discuss the selection criteria of appropriate material handling equipment for handling and lifting the parts. 				
12.	Semester 3	<p>Inspect automotive parts, products and processes quality</p> <p>Theory Duration (hh:mm) 35:00</p> <p>OJT Duration (hh:mm) 325.00</p> <p>Corresponding NOS code ASC/N6301</p>	<p>Preparing for inspection process</p> <p>To be competent, the user/individual on the job must be able to:</p> <ul style="list-style-type: none"> ● Interpret the inspection check sheet and coordinate with the superior for confirming ● Inspection tasks ● Identify testing equipment, measuring instruments, gauges, parts etc. Required during the quality inspection process ● Check the calibration status of tools, gauges and measuring instruments to be used for inspection process <p>Perform inspection process</p> <p>To be competent, the user/individual on the job must be able to:</p> <ul style="list-style-type: none"> ● Conduct the visual inspection of part or product for scratches, dents, damages, packing etc. As per the norms and quality standards ● Conduct the dimensional inspection of part or product by using inspection and measuring instrument such as vernier caliper, bore gauge, go/no-go gauge, micrometer etc. 	35	70	60%	70%

			<ul style="list-style-type: none"> ● Maintain and preserve the tested samples to track inspection history of automotive part or product tested and use it as defect/limit samples ● Check that the sticker/number/label is placed on the inspected automotive part or product ● Use RCA and ABQP techniques to inspect and verify the quality and effectiveness of automotive product manufactured and process followed in an organization ● Conduct automotive process inspection to verify the process control items by using pressure gauge, temperature gauge, voltmeter/ ammeter etc. ● Follow safety practices recommended by organization during quality inspection process ● Raise a scrap note and dispose off the scrapped part or product in the scrap yard as per the organization specified procedure ● Assist the QC inspector in preparation of first-off inspection report by referring to process ● Inspection standard/process parameter sheet/control plan ● Maintain and update the records such as inspection report, charts in graphical pattern and other documents, manually or electronically as per the sop 				
13.	Semester 3	Inspect the product quality Theory Duration (hh:mm)	<ul style="list-style-type: none"> ● Demonstrate process of inspection at different stages. ● Demonstrate use of inspection equipment and instrument such as vernier micrometers, height gauge & surface plate, slip gauge, combination gauges, gauges- bore, air, profile, dial, instrument / 	35	70	60%	70%

		<p>35:00</p> <p>OJT Duration</p> <p>(hh:mm)</p> <p>295.00</p> <p>Corresponding NOS code</p> <p>ASC/N6303</p>	<p>equipment such as surface roughness tester, roundness etc. And coordinate measurement machine (CMM).</p> <ul style="list-style-type: none"> • Carryout preservation of samples such as master sample for PPAP, inspected batch sample and reference sample for the defect library for monitoring product quality. • Demonstrate inspection process of the product covering the checkpoints such as part for scratches, dents, damages, packing as per the norms etc., identification sticker/number/label placed on the product and functioning of the products and its components. • Prepare inspection reports and relevant documents. • Prepare records in IR, ERP system. • prepare capability index calculation/ charting as per the sop. • Conduct audit of production line for first off inspection report, cp for coverage of parameters, stage inspection & process capability charts etc. • Follow organization policies and procedures for storage and preservation of materials. • Learning outcomes from exploring quality can vary widely depending on the context. Generally, learning outcomes from exploring quality can include developing an understanding of what constitutes quality and how to identify it, learning how to apply quality standards to a variety of situations, developing problem-solving skills, developing skills in data analysis, and developing an understanding of how to meet customer expectations. 				
14.	Semester 3	Maintain The Product Quality	<ul style="list-style-type: none"> • Follow ts-16949/any other QMS system guidelines followed in the organization. • Describe new development product (NPD), dock audit, process. 	35	70	60%	70%

		<p>Theory Duration (hh:mm) 35:00</p> <p>OJT Duration (hh:mm) 445.00</p> <p>Corresponding NOS code ASC/N6303</p>	<ul style="list-style-type: none"> Describe APQP, PFMEA CP process and its application. Demonstrate process of disposing the scrapped the product in the scrap yard. Describe problem solving & analysis tools like 8Ds, five why analysis, 7QC tools etc. Implement problem solving & analysis tools for collecting data regarding the problem. Describe RCA analysis techniques. Implement CAPA for discrepancies in the parameters identified in the IR. Explain calibration system for instrument and gauges and be able to conduct R+R study. <p>Explain function of parts and aggregates.</p>				
15.	Semester 4	<p>Perform maintenance of mechanical equipment</p> <p>Theory Duration (hh:mm) 30:00</p> <p>OJT Duration (hh:mm)</p>	<p>Preparing for the maintenance activity</p> <p>To be competent, the user/individual on the job must be able to:</p> <ul style="list-style-type: none"> Identify the equipment, its manufacturer's specifications and functioning from the user manual Enquire with the user/operator about any problems/unusual conditions noticed on the equipment Read the corrective maintenance schedule to identify tools, consumables, spare parts required during the task and prepare schedule for conducting the preventive maintenance of the equipment 	35	70	60%	70%

		<p>390.00</p> <p>Corresponding NOS code ASC/N6813 ASC/N6804</p>	<ul style="list-style-type: none"> ● Use checklist and coordinate with the superior for confirming maintenance tasks <p>Carrying out the maintenance of the equipment</p> <p>To be competent, the user/individual on the job must be able to:</p> <ul style="list-style-type: none"> ● Dismantle the equipment and replace/change the spare parts and consumables as per the schedule ● Check the equipment for any geometric inaccuracies or internal conditions to test its working status and expected conditions ● Conduct breakdown maintenance and then inspect the equipment for leakages, breakages, unusual noise, under-rated performance or any other problem as reported in the complaint ● Clean, change or repair the equipment components as per requirement ● Use recommended consumables, tools and equipment for service and repair of equipment as per standard operating procedures (sop) ● Dispose off waste materials such as oil, failed parts/aggregates, as per organization's policies ● Check the internal conditions of wiring, motherboards etc. To test its working status and expected conditions ● Conduct breakdown maintenance and then inspect the equipment for charge leakage, short circuit in parts, breakage of wires and clamps, unusual contact of electrical wires with moving parts, erratic/problematic performance or any other problem as reported in the complaint 				
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16.	Semester 4	<p>BPS Basics:</p> <ul style="list-style-type: none"> ○ What is LEAN? What is BPS with 3M and 7 wastes? ● "8 Principles of BPS ○ Focus on 4 Principles Waste Elimination + 4 principles of Std Work ○ Elements of BPS to address different 7Ws." ○ Basics of VSM and VSD including Symbols, Lead time, Kaizens, etc. ● Shop floor Gemba walk for witnessing BPS tools, VSM-VSD ● Introduction to Basic SCIP <p>Theory Duration</p> <p>(hh:mm)</p> <p>20:00</p> <p>OJT Duration</p> <p>(hh:mm)</p>	<ul style="list-style-type: none"> ● Understand how to reduce waste and maximize efficiency in manufacturing processes. ● Recognize the importance of continuous improvement in order to stay competitive. ● Learn ways to identify and eliminate sources of inefficiency in the production process. ● Utilize data-driven decision making to improve manufacturing processes. ● Develop a culture of problem solving and creativity throughout the organization. ● Implement strategies for reducing lead time and increasing quality. ● Understand the importance of minimizing inventory and increasing responsiveness. ● Utilize different lean tools and techniques to drive organizational change. 	35	70	60%	70%
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		310.00					
17.	Semester 4	<p>Employability Skills (120 Hours)</p> <p>Theory Duration (hh:mm) 50:00</p> <p>OJT Duration (hh:mm) 0.00</p> <p>Corresponding NOS code</p>	<ul style="list-style-type: none"> • Discuss own strengths and weaknesses and analyse the gaps to ensure continuous improvement. • Discuss the measures to be undertaken to utilise time effectively thereby achieving maximum productivity. • List the characteristics of innovative individuals • List the levels of Maslow Hierarchy of needs • List the traits of effective team • Discuss tips for stress management • Discuss the importance of good work ethics • Discuss how to manage an enterprise • Describe how to plan effective strategies for solving problems and improving work culture within the team. • List the various types of digital marketing techniques. • Discuss the types and importance of e-commerce in promoting businesses. 	50	0	60%	

		DGT/VSQ/N0104	<ul style="list-style-type: none"> • List the various types of online banking services being used widely. • Discuss the procedure to apply for bank finances • List the elements of a proposal to attract future business opportunities and prospective clients. • Explain how to conduct entrepreneurial programs to identify business opportunities, generate employment and increase clientele. • Understand the make in India campaign • Discuss the importance of Swachh Bharat Abhiyan • Understand the importance of entrepreneurship • Describe the traits of successful entrepreneur • List the types of enterprises • Understand the importance of effective speaking and listening • Discuss the importance of problem solving • Discuss how to deal with failures • Describe the core keys of marketing • Discuss ways to manage risks at workplace • Show how to analyse a situation to identify gaps for improving the work process. • Demonstrate the procedure to plan the time taken to perform various tasks effectively. • Describe how market research is carried out • Role play the characteristics of an effective entrepreneur and leader • Prepare a sample plan to solve problems and improve productivity at the workplace. • Demonstrate the procedure to operate a computer for digital marketing, e-commerce, branding, etc. 				
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			<ul style="list-style-type: none"> Show how to use services such as NEFT, IMPS, UPI, RTGS for online banking. 				
		Total Marks		610	980	60%	70%

Glossary

Term	Description
Sector	Sector is a conglomeration of different business operations
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.

Acronyms

Acronym	Description
NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework

QP	Qualifications Pack
FLPL	Front Line Production Resource
FMP	Flexi Manpower
LPC	Layered Process Control
KPI	Key Performance Indicator
BPS	Bosch Production System
VSM	Value Stream Mapping
VSD	Value Stream Design
SOP	Standard Operating Procedure
WI	Work Instructions
PPE	Personal Protective equipment

Annexure 1: Tools and Equipment

List of Tools and Equipment which should Front Line Production Resource aware.

The tools and equipment:

S. No.	Tool / Equipment Name	Specification
1	Surface Grinder Horizontal head Table:	175 x 350 mm Height: 275 mm 0.01 mm gradual vertical feed 2800 rpm speed 150 x 300 mm magnetic chuck 0.5 diamond dresser 1 wheel balancing stand 600 -700 kg weight
2	Steel Rule 150 mm	Standard
3	Steel Rule 300 mm	Standard

4	Steel Rule 600 mm	Standard
5	Outside caliper (Simple)Spring type; 150 mm	Standard
6	Inside Caliper (Simple)150 mm	Standard
7	Vernier height gauge300 mm	Standard
8	Outside vernier caliper 200 mm	Standard
9	Outside micrometer 0 to 25 mm	Standard
10	Measure tap5 meter	Standard
11	Spirit level12"	Standard
12	Slip gauge boxM112	Standard
13	Combination set300 mm	Standard
14	Dial test indicator: LC 0.01 mm	Standard
15	Dial indicators stand	Standard
16	Sine bar Bharat make	Standard
17	GO-No Go plug 25 mm	Standard
18	Go-No Go Snap 25 mm	Standard
19	Radius Gauge1.0 to 15 mm	Standard
20	Air Gauge	Standard
21	Wire gauge	Standard
22	Vernier Dial caliper 200 mm	Standard
23	Vernier digital caliper 200mm	Standard
24	Outside digital micrometer 0 to 25mm	Standard
25	Outside digital micrometer 25 to 50 mm range	Standard
26	Screw pitch Gauge Metric and inch	Standard
27	Marking Block 150 mm	Standard
28	Hacksaw frame	Standard
29	Tri Square 100 mm	Standard
30	Letter Punch 3 mm ; 1 to z	Standard
31	Number Punch ; 3 ,mm ; 0 to 9	Standard
32	Dot slot punch	Standard
33	Centre Punch 100 mm	Standard
34	Hammer 200 gm Ball pin	Standard
35	Anvill 50 kg	Standard

36	Bench vice 125 mm	Standard
37	Fire Extinguisher	Standard
38	Spanner Set Metric 6-7 to 30-32	Standard
39	Spanner Set Inches 1/8-3/16 to 5/8-3/4	Standard
40	Tap Wrench 12 mm	Standard
41	Measure tap	Standard
42	Pliers	Standard
43	Allen Key 8 mm	Standard
44	Tap set 10 mm Metric	Standard
45	Snip (Metal Cutter) 12"	Standard
46	Cutting File Rough; 300 mm	Standard
47	Cutting File Smooth k 250 mm	Standard
48	Revolving Centre	Standard
49	Shaping tool holder 3/8"	Standard
50	Tool holder (lathe) 3/8"	Standard
51	Allen Key Set 1.5 to 10mm	Standard
52	V block with clamp	Standard
53	Knurling tool 6 wheel	Standard
54	Screw Spanner 380 mm	Standard
55	Drill Sleeve MT 2-3	Standard
56	Surface Plate 400 x 400 x64 mm	Standard
57	Angle Plate	Standard
58	Basic Pneumatic Training kit 1x Profile plate 3/2 way push button actuation valve N.C. 3/2 way push button actuation valve N.O 5/2 way selector switch actuation valve 2x Pressure Gauge Quick Exhaust Valve 3/2 roller lever valve, idle return N.C 3x 3/2 roller lever valve direct actuation .N.C.	Standard

	<p>5/2 pneumatic actuated valve, single sided 5/2 pneumatic actuated valve, double sided Shuttle valve (OR) Dual pressure valve (AND) Time delay valve/adjustable.N.C. One way flow control valve Pressure sequence valve Single acting cylinder Double acting cylinder Filter regulator with gauge Manifold Plastic tubing PUN 4 (Mtrs) T-Connector Connection component set Pressure regulator with gauge Plastic tubing PUN 8 (Mtrs)</p>	
	<ul style="list-style-type: none"> ● Sample Parts Applicable to Automotive application, Defective Samples ● Preferably with Dent, Scratches, Rust, Sharp Burrs, Limit Samples for Visual Defects ● Vernier calliper, micrometer, height gauge, surface plate, slip gauges, combination gauges, standard pin set. ● Gauges – Bore, Air, Profile, Dial ● Equipment such as surface roughness tester, roundness profile projector. ● Co-ordinate measurement machine (CMM). ● Centre Bench, V Blocks, clamps, feeler group, 	<p>Standard</p>

	<ul style="list-style-type: none">● Labels, Stickers, Sample Inspection Report Format● Manuals for SPC, APQP, MSA TS Standard Manual.● Safety Materials: Fire extinguisher, Leather safety gloves, leather aprons, safety glasses, Ear Plug, Safety Shoe and First aid kit● Cleaning material and other tools: Wire brush (M.S.), Cleaning agents, Cleaning cloth, Waste container, Dust pan & brush set	
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Classroom Aids

The aids required to conduct sessions in the classroom are:

- 1 Projector
- 2 Computer/laptops
- 3 Internet connectivity
- 4 Whiteboard

Annexure 2: Assessment Strategy

Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (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 centre based on these criteria.
5. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
6. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack

Minimum Aggregate Passing % at QP Level : 65%

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)