

Model Curriculum

Casting Line Supervisor

SECTOR: AUTOMOTIVE
SUB-SECTOR: MANUFACTURING
OCCUPATION: CASTING
REF ID: ASC/Q 3206
NSQF LEVEL: 5

 Skill India वीरता धरति - कुशल धरति	 AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL	 N-S-D-C National Skill Development Corporation Transforming the skill landscape
Certificate		
CURRICULUM COMPLIANCE TO QUALIFICATION PACK - NATIONAL OCCUPATIONAL STANDARDS		
is hereby issued by the		
AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL		
for		
MODEL CURRICULUM		
Complying to National Occupational Standards of		
Job Role/Qualification Pack	"Casting Line Supervisor"	QP No: "ASC/Q3208, NSQF Level 5"
Date of Issuance: August 12th, 2018		
Valid up to: July 12th, 2020*		
*Valid up to the next review date of the Qualification Pack		
		 Authorised Signatory (Automotive Skills Development Council)

TABLE OF CONTENTS

1. Curriculum	02
2. Trainer Prerequisites	07
3. Annexure: Assessment Criteria	08

Casting Line Supervisor

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Casting Line Supervisor”, in the “Automotive” Sector/ Industry and aims at building the following key competencies amongst the learner

Program Name	Casting Line Supervisor		
Qualification Pack Code	ASC/Q3206		
Version No.	1.0	Version Updated	13- 09- 2018
Pre-requisites to Training	ITI - Mechanical / Diploma in Mechanical Engineering		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Manage various metal casting operations: Supervise end to end operations to ensure that the final products manufactured by casting team is as per the quality and production norms set by the organization. • Identify process requirements, ensuring process implementation & suggest basic improvements: Understand required processes, ensure implementation of processes as per the Work instruction/ SOPs/ Control Plan and also providing basic level of inputs for process improvement through deploying different tools/ participating in analysis. • Manage the production related operations of the Shift/ Line on a day to day basis: Ensure Operational Productivity in the Shift/ Line on a day to day basis and manage issues related to the Manpower Deployment, Management of raw material and finished goods and general supervision of the teams involved in the production activities. • Manage the team on the line/ shift on a day to day basis: Manage the team of operatives and helpers on day to day basis, ensure their shift deployment, motivate them by involving them in various engagement initiatives at the shop floor, help them improve the skills levels and manage their grievances in the best possible manner in order to maximize the people productivity at the shop floor. • Maintain a safe and healthy working environment at the workplace: Create a Safe and Healthy work place, adhere to the safety guidelines in the working area, follow practices which are not impacting the environment in a negative manner and train team members on health and safety related issues. • Ensure implementation of 5S activities at the shop floor & the office area: Oversee the implementation of all 5S activities both at the shop floor and the office area by the team members and train the team in implementation of the 5S principles. 		

Sr. No.	Module	Key Learning Outcomes	Equipment Required
3.	<p>Understanding process requirements, ensuring process implementation and suggest basic improvements</p> <p>Theory Duration (hh:mm) 50:00</p> <p>Practical Duration (hh:mm) 35:00</p> <p>Corresponding NOS Code ASC/N0013</p>	<ul style="list-style-type: none"> Discuss different types of manufacturing processes used in industry. Identify requirement of raw materials used in the process. List tools, jigs and fixtures required Use tools, jigs and fixtures. Do maintenance of tools, jigs and fixtures Operate the machine in both, automatic and manual mode. Use various measurement tools like vernier callipers, micrometers, rulers, scales, weighing machines etc. Identify different types of defects in the final product. Describe metallurgical and chemical properties of material. Demonstrate handling of electrical equipment and circuits, rectifiers and control panel etc. Demonstrate measurement of workpiece for the correct specifications in terms of thickness, hardness, durability, tightness, finesse etc. List various problems solving tools like 7QC, Why Why Analysis, Brain storming etc. Follow 5S practices in production line. Execute process improvement techniques like Kaizens, TQM, and Poka Yoke at workplace. 	<p>PPT's and teaching aids</p> <p>Raw Materials: Sand, die</p> <p>Machinery: hoppers, pouring nozzles, mixers, pressing machines, feeders etc.</p> <p>Auxiliaries: bucket, pouring nozzles, ladles, spatulas, chippers etc.</p> <p>Shot blasting machine</p> <p>Fuel: Charcoal</p> <p>Measuring Tools: Steel tape, Steel rule, Vernier calliper, Micrometer, Compass</p> <p>Cutting Tools: Hacksaw frame adjustable, chisel, scissor, Sand paper</p> <p>Driving Tools: Chipping hammer, wooden mallet,</p> <p>Safety Materials: Fire extinguisher, Leather safety gloves, leather aprons, safety glasses, Ear Plug, Safety Shoe and First aid kit</p> <p>Cleaning material and other tools: Tip cleaner, Wire brush (M.S.), Cleaning agents, Cleaning cloth, Waste container, Dust pan & brush set, Liquid soap, Hand towel</p>
4.	<p>Perform production related operations of the Shift/ Line on a day to day basis</p> <p>Theory Duration (hh:mm) 50:00</p> <p>Practical Duration (hh:mm) 40:00</p> <p>Corresponding NOS Code ASC/N0014</p>	<ul style="list-style-type: none"> Perform effective shift planning based on manpower allocation. Make shift rosters for the week and month based on the production plan. Send inventory requirements to Stores and Purchase department. Describe various functions like material management, stores, paint shop, assembly line, quality, safety, production planning etc. Perform end of line inspection. Identify requirement of tools and equipment for the operators and helpers. Do optimal resource utilization (man, machine and material) Identify & implement action steps to reduce losses and wastages during shift operation and ensure minimum rejection of components. 	<p>PPT, Case studies, shift planning document or software, projector</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
	ASC/N0022	Non-Hazardous waste and dispose the waste as per SOP <ul style="list-style-type: none"> Follow 5S guidelines at workplace 	
	Total Duration Theory Duration 250:00 Practical Duration 200:00	Unique Equipment Required: <ul style="list-style-type: none"> PPT's and teaching aids Raw Materials: Sand, die Machinery: hoppers, pouring nozzles, mixers, pressing machines, feeders etc. Auxiliaries: bucket, pouring nozzles, ladles, spatulas, chippers etc. Shot blasting machine Fuel: Charcoal Measuring Tools: Steel tape, Steel rule, Vernier calliper, Micrometre, Compass Cutting Tools: Hacksaw frame adjustable, chisel, scissor, Sand paper Driving Tools: Chipping hammer, wooden mallet, Safety Materials: Fire extinguisher, Leather safety gloves, leather aprons, safety glasses, Ear Plug, Safety Shoe and First aid kit Cleaning material and other tools: Tip cleaner, Wire brush (M.S.), Cleaning agents, Cleaning cloth, Waste container, Dust pan & brush set, Liquid soap, Hand towel 	

Grand Total Course Duration: **450 Hours, 0 Minutes**

(This syllabus/ curriculum has been approved by [Automotive Skills Development Council](#))

Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Casting Line Supervisor
Qualification Pack	ASC/Q3206
Sector Skill Council	Automotive

Sr. No.	Guidelines for Assessment
1	Assessment to be conducted by ASDC as per competency output defined in the NOS/QP and the assessment criteria provided in the NOS/QP.
2	Assessment to be carried out by a third party Assessment Body duly affiliated to the SSC.
3	ASDC assessments will be comprehensive and cover all aspects of acquired knowledge, practical skills and also basic ability to communicate. Accordingly, evaluation process would include: <ol style="list-style-type: none"> i. Theory/Knowledge test ii. Practical demonstration test iii. Face to Face Viva
4	Theory/Knowledge assessment will be carried out on line through a link provided for each assessment that generates a random paper from a bank of questions available at the back end. <ul style="list-style-type: none"> • Exception to an online test in favour of Paper Test would be subject to non-availability of requisite broad band and/or hardware. • On line test would be conducted in the presence of an ASDC assessor till web enabled proctoring is deployed.
5	ASDC assessor would be conducting Practical and Viva as per the criteria provided in the NOS/QP.
6	Cut off criteria for certification (Marks obtained in %): 75%

Annexure: Assessment Criteria

Job Role	Casting Line Supervisor
Qualification Pack	ASC/Q3206
No. Of NOS	1 Role specific, 6 generic

Assessable Outcome	Assessment Criteria	Total Mark	Out of	Marks allocation	
				Theory	Practical
1. ASC/N3222 Manage various metal casting operations	PC1. Ensure that the latest version of the available engineering drawing is available with the team and is adhered to ensure accurate casting.	100	3	1	2
	PC2. Ensure that the team members understand and follow all the do's and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors/ master technicians.		3	1	2
	PC3. Identify the required activities which need to be executed in order to achieve the final output as per the work order.		3	1	2
	PC4. Ensure that the process adopted is according to the Work Instructions/ Standard Operating Procedures adopted.		3	1	2
	PC5. Ensure that operation of mould making apparatus like hoppers, pouring nozzles etc. take place smoothly.		3	1	2
	PC6. Ensure that the assistant operator has the right instructions and SOPs to operate various machines.		3	1	2
	PC7. Ensure that the right components are loaded and the shots in the chamber of the shot blasting machine.		5	2	3
	PC8. Ensure that the required operation code is fed in the pressing machine for it to prepare the core.		4	1	3

PC18.Ensure that the first and last casting from each batch is sent to the lab for quality check on its composition, soundness, nodularity etc.	4	1	3
PC19.Ensure that the final metal casting is as prescribed in the work order and the relevant engineering drawings.	3	1	2
PC20.In case the parts are not as per the given measurements, ensure that the same for further processing in terms of chipping, fettling etc.	3	1	2
PC21.Ensure that the final mould pattern is measured and compared with the dimensions as prescribed in the work order engineering drawing.	4	1	3
PC22.Ensure escalation of any issues related to die setting to the machine setter in the plant.	3	1	2
PC23.Ensure that pouring is in line with the defined work standards and specifications and minimization of metal spillage in the work area and that the pouring observations like parting leak, gas evolution or any abnormality are duly recorded.	4	1	3
PC24.Ensure that the team operates the machine using the recommended Personal Protective Equipment (PPE) at the workplace.	3	1	2
PC25.Ensure that the appropriate medical officer/HR is informed in case an employee's illness is of a contagious nature.	3	1	2
PC26.Ensure relevant safety board's/signs are placed on the shop floor.	3	1	2
PC27.Establish linkage between rejection of output and the pertinent causes for the same (process/ material etc.) and recommend the means for rejection control when required.	4	1	3

	PC28. Obtain help or advice from specialist if the problem is outside the operator's area of competence or experience.		3	1	2
	PC29. Observe and analyse any irregularities in the processes and take preventive steps whenever required.		3	1	2
	Total		100	30	70
2. ASC/N0013 Understand process requirements, ensure process implementation	PC1. Display detailed understanding of all the requisite processes to be adopted for completing the work order through reading the process manuals/ Work Instructions/ Standard Operating Procedures for the production job.	100	4	1	3
	PC2. Share knowledge of processes, inputs and outputs with the operators to enhance their skill levels.		4	1	3
	PC3. Ensure the various SOW/WI created by the master technician are displayed and understood at each and every work station.		4	1	3
	PC4. Maintain work flow by monitoring steps of the processes, setting variables, observing control points and equipment.		4	1	3
	PC5. Support in defining detailed processes for each step and line.		4	1	3
	PC6. Monitor various process parameters on a regular basis and ensure compliance to agreed standards (e.g. ambient air quality, stack monitoring, water quality monitoring etc.).		6	2	4
	PC7. Ensuring recording and reporting procedures and systems are in place.		6	2	4
	PC8. Facilitating corrections to malfunctions within process control points.		6	2	4
	PC9. Ensure 5S implementation in the production line by analyzing possible areas of systems and process improvements and ensure implementation of the recommended measures to address the gaps.		6	2	4
	PC10. Ensure successful implementation of		6	2	4

	the completed Poka Yoke and kaizen on the running line				
	PC11. Ensure compilation of data of breakdown maintenance and reporting the same to the maintenance team.		6	2	4
	PC12. Conduct random sampling on the incoming quality of material and provide the relevant feedback on the same to the store.		6	2	4
	PC13. Conduct random sampling of the process parameters and WIP products and provide necessary feedback to the line leaders.		4	1	3
	PC14. Conduct random sampling of the finished goods and provide the necessary feedback.		4	1	3
	PC15. Conduct batch wise product quality check in order to ensure that the quality of the product produced meet customer requirements.		4	1	3
	PC16. Support in ensuring optimum resource utilization and wastage reduction through process improvements, Kaizens, TQM, Poka Yoke etc.		4	1	3
	PC17. Support and provide inputs on analysis of breakdown trends and current maintenance process to identify areas for improvement to achieve cost savings and reduce breakdown timing.		5	2	3
	PC18. Identify areas of improvement in the existing processes/systems and take counter measures to adhere to the identified Kaizens.		5	2	3
	PC19. Support the master technician in sharing inputs from the line for various Poka Yoke, kaizen activities.		4	1	3
	PC20. Encourage team members/ operators to suggest quality improvement measures through suggestion schemes, evaluate feasibility of the ideas and discuss their implementation with seniors.		4	1	3
	PC21. Support in analyzing internal & external		4	1	3

	rejection of components.				
	PC12. Prepare daily and monthly production MIS reports to match actual performance vis-à-vis the targets and report the same to Production In-chart.		6	2	4
	PC13. Verify the production and material movement related data entries in the system (manual/ ERP) for the line/ shift and ensure correctness of the data.		3	1	2
	PC14. Support the In charge/ Engineer/ Shop Head in analysing the various data sheets related to production, maintenance, manpower deployment etc.		3	1	2
	PC15. Support the maintenance team in finalizing the preventive maintenance schedule for the shop/ line.		3	1	2
	PC16. Support the maintenance function to ensure execution of the maintenance schedules.		3	1	2
	PC17. Ensure shift handover to the next shift supervisor.		3	1	2
	PC18. Observe and note the consumption of energy, fuel, steam on the production line and support the engineer in optimization of utilization of factors of production.		3	1	2
	PC19. Ensure that the operator and helper are using the required Personal Protective Equipment like Goggles, masks, gloves and other PPEs at the time of conducting the painting operation.		3	1	2
	PC20. Conduct incoming quality inspection of material and provide the relevant feedback on the same to the store.		3	1	2
	PC21. Conduct quality inspection of the process parameters, lab parameters and WIP products and provide necessary feedback to the line leaders.		3	1	2
	PC22. Conduct quality inspection of the finished goods and provide the necessary feedback.		3	1	2
	PC23. Conduct quality inspection of the first sample/batch to ensure that the quality of the product produced meet customer requirements.		3	1	2

	PC24. Conduct inspection and analysis of the defects observed in the process and products.		3	1	2
	PC25. Take overall responsibility to ensure adherence to Safety standards by all employees and establish zero accident practice in the section.		3	1	2
	PC26. Implement various business excellence techniques like Kaizen, 5S Initiatives.		3	1	2
	Total		100	30	70
4. ASC/N0015 Manage the team on the line/ shift on a day to day basis	PC1. Ensure operators and helpers on the production line/ shift are aware of the job expectations on a daily basis.	100	3	1	2
	PC2. Ensure that the operators are aware of the production targets and the timelines required to process a work order as finalized in the production plan.		4	1	3
	PC3. Involve operators and helpers for the daily floor meeting/ morning meetings/ staff meetings to communicate information intended for them.		4	1	3
	PC4. Ensure communication to line operators/ helpers on any changes in policies/ processes by the organization through required verbal/ written mechanisms.		4	1	3
	PC5. Ensure participation of employees in various engagement initiatives organized at the plant and other place by the organization.		4	1	3
	PC6. Involve operators and helpers in Quality Circles, TQM & Kaizen meets, Brainstorming sessions, safety drills etc. to increase their involvement in manufacturing operations.		5	1	4
	PC7. Ensure availability of tea, snacks, drinking water and basic hygiene facilities at the shop floor for the operative workforce.		5	1	4
	PC8. Escalate issues to Shift In-Charges/ concerned staff in case of any issue related to operative deployment and engagement.		5	1	4
	PC9. Support the Shift In-Charges in finalizing the shift planning and manpower deployment for the shift/		6	2	4

