

Model Curriculum

1. Casting Operator (Metal Handicrafts)

SECTOR: HANDICRAFTS AND CARPET
SUB-SECTOR: METALWARE
OCCUPATION: METAL CASTING AND STAMPING
REF ID: HCS/Q2801, V1.0
NSQF LEVEL: 3



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

HANDICRAFTS AND CARPET SECTOR SKILL COUNCIL

for the

MODEL CURRICULUM

Complying to National Occupational Standards of

Job Role/ Qualification Pack: '**Casting Operator (Metal Handicrafts)** No. '**HCS/ Q 2801 NSQF Level 4**

Date of Issuance: **May 27th, 2015**

Valid up to: **May 26th, 2017**

* Valid up to the next review date of the Qualification Pack



Authorised Signatory
(Handicrafts and Carpet Sector Skill Council)

TABLE OF CONTENTS

1. Curriculum	01
2. Trainer Prerequisites	08
3. Annexure: Assessment Criteria	09

Casting Operator (Metal Handicrafts)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Casting Operator (Metal Handicrafts)”, in the “Handicrafts and Carpet” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Casting Operator (Metal Handicrafts)		
Qualification Pack Name & Reference ID. ID	HCS/Q2801, v1.0		
Version No.	1.0	Version Update Date	27/05/2015
Pre-requisites to Training	Basic literacy, preferably 5th class pass		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Explain the role of a Casting Operator (Metal Handicrafts): Introduction to the role and importance of a Casting Operator (Metalware) in the Handicraft Sector • Carry out measurements for various tasks: Practice basic arithmetic and understand weight and length measurements. • Set the casting machine and prepare raw materials: Calculating and obtaining the relevant raw materials for the product. Check the machine for operation suitability and make ready for operations. • Prepare the mold for casting: Prepare open and closed molds for casting using appropriate raw materials. • Operate the furnace: Carry out safe operations of the furnace, for melting the metal for casting, maintaining the right temperature. • Cast metal products: Use various casting methods, pour metal into the mold and ensure safety and precision of edges and relevant trimming. Cool to right temperature and de-mold, check for defects. • Use soft skills to improve functioning and effectiveness: Follow good work ethics and explain its importance towards building teamwork. Adopt good communication & interpersonal skills. • Follow healthy work practices and maintain a healthy work environment: Explain the importance of living a healthy life and practice general hygiene. Respect & practice general safety rules to manage work, avoid injury and deal with work-related stress efficiently. • Use some basic business management principles for better business outcomes: Use market understanding to assess products and their features in relation to demand and production requirements. 		

Trainer Prerequisites for Job role: “Casting Operator (Metal Handicrafts)” mapped to Qualification Pack: “HCS/Q2801, v1.0”

Sr. No.	Area	Details
1	Description	The individual at work is responsible for preparing the mold, melting metal, pouring the liquid metal into a mold, solidify and cool to attain the desired shape as per the requirement. The person often uses this method for complex shapes choosing from the different methods of casting.
2	Personal Attributes	The job requires the individual to have: attention to details, good eyesight, steady hands, and ability to sit in same position for longer hours, patience and creativity.
3	Minimum Educational Qualifications	10 th Pass
4a	Domain Certification	Certified for Job Role: “ <u>Casting Operator (Metal Handicrafts)</u> ” mapped to QP: “HCS/Q2801, v1.0”. Minimum accepted score is 80%
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: “SSC/Q1402”. Minimum accepted % as per respective SSC guidelines is 70%.
5	Experience	<ul style="list-style-type: none"> • Total 3 Years experience, • 2 Years of sector-specific experience, • Min. 1 year of teaching experience

	PC12. set the machine to begin the process		9	4	5
		Total	100	48	52
HCS/N2802 Cast the metal surface	PC1. decide on the type of mold to be prepared, if closed mold or open mold	100	3	1	2
	PC2. ensure to use the appropriate tools for molding		3	1	2
	PC3. clean the surface before beginning to mold		3	1	2
	PC4. prepare the pattern in the form of a model using the appropriate materials		3	1	2
	PC5. prepare the mold by holding around a pattern within a supporting metal frame		4	1	3
	PC6. remove the pattern leaving the mold cavity with cores		4	1	3
	PC7. ensure the mold is prepared to the required shape		3	1	2
	PC8. decide on the type of casting to be performed from expendable, permanent mold casting, sand casting, investment casting, etc.		3	1	2
	PC9. prepare the molten metal melting a solid metal		3	1	2
	PC10. determine the size of the furnace		3	1	2
	PC11. heat this solid metal placed in coal to an appropriate temperature in a suitable furnace for required time		4	1	3
	PC12. monitor the furnace constantly to avoid defects at later stage		3	1	2
	PC13. open the furnace and check for completion		3	1	2
	PC14. pour the molten metal into the mold at the right temperature manually		4	1	3
	PC15. ensure not to leak while pouring		3	1	2
	PC16. ensure minimal accidents while handling molten metal		3	1	2
	PC17. allow this to solidify and cool to room temperature		3	1	2
	PC18. take the metal out of the mold, trim and bring to the desired shape		3	1	2
	PC19. ensure to set the appropriate temperature and duration setting to the machine for operation as per specifications		3	1	2
	PC20. ensure to weigh the correct amount of lubricants to be used		3	1	2
	PC21. remove any dirt, sand, excess metal etc. from the casting		3	1	2

	PC22. clean the surface of the cast and improve its appearance		3	1	2
	PC23. check the metal after casting, if it matches requirement		3	1	2
	PC24. make necessary adjustments if any		3	1	2
	PC25. rectify and rework if any mistakes are found un-matching the design specifications and requirements		3	1	2
	PC26. melt and recast product returned from QC		3	1	2
	PC27. ensure general maintenance of the machine		3	1	2
	PC28. ensure no shut down of machines due to improper maintenance		3	1	2
	PC29. perform regular cleaning process as prescribed by manufacturer		3	1	2
	PC30. ensure casting process performed is as per requirement		3	1	2
	PC31. ensure the target number of pieces are casted		3	1	2
	PC32. ensure the output delivered is defect free and hazard free		3	1	2
		Total	100	32	68
HCS/N9901 Coordinate with colleagues and work as a team	PC1. receive job order and instructions from reporting supervisor		4	3	1
	PC2. understand the work output requirements, targets, performance indicators and incentives		5	4	1
	PC3. deliver quality work on time and report any anticipated reasons for delays		5	1	4
	PC4. report on any grievances, production defects and any potential hazards		4	2	2
	PC5. communicate on process flow improvements		4	2	2
	PC6. communicate maintenance and repair schedule proactively to the supervisor	100	4	1	3
	PC7. receive feedback on work standards		4	2	2
	PC8. interact and clarify doubts on design, usage of materials & tools, quality & standards compliance, etc		5	2	3
	PC9. report in time for shortage or need of raw materials		4	1	3
	PC10. handover completed work to supervisor		4	2	2
	PC11. communicate to the colleagues from within and other departments, clearly and effectively on all aspects to carry out the work among the team		5	2	3

	PC12. maintain the etiquettes, use polite language, demonstrate responsible and disciplined behaviours to the colleagues		5	2	3
	PC13. interact with colleagues from different functions and understand the nature of their work		4	2	2
	PC14. put team over individual goals and multi task or share work where necessary supporting the colleagues		4	2	2
	PC15. resolve conflicts and ensure smooth workflow		4	1	3
	PC16. interact and understand the production requirement for the day from the previous and successive processing department and work accordingly		4	1	3
	PC17. communicate and discuss work flow related difficulties in order to find solutions with mutual agreement		4	1	3
	PC18. receive feedback from Quality Control and rework in order to complete work on time		5	1	4
	PC19. share information with colleagues to enable efficient delivery of work		6	3	3
	PC20. highlight any errors of colleagues, help to rectify and ensure quality output		4	2	2
	PC21. work with cooperation, coordination, communication and collaboration, with shared goals and supporting each others performance		4	1	3
	PC22. document all the details accurately relating to one's role as required		4	1	3
	PC23. report on the work completed and keep it in records		4	1	3
		Total	100	40	60
HCS/N9902 Maintain safe work environment	PC1. comply with safety procedures while on work to prevent accidents	100	8	2	6
	PC2. take adequate safety measures while handling materials, chemicals and tools		8	2	6
	PC3. wear appropriate personal protective gears such as gloves, protective goggles, masks etc. while working		8	2	6
	PC4. undertake basic safety checks before operation of all tools and electrical equipments		9	2	7
	PC5. wear appropriate and recommended clothing as per the work environment (eg: working in a furnace area)		9	2	7

	PC29. identify cost effective means of running business		3	1	2
	PC30. identify various aspects of business that require recording		3	2	1
	PC31. create formats for recording		3	2	1
	PC32. make various records pertaining to all aspects of business		3	2	1
	PC33. maintain these records with periodic updation		3	2	1
	PC34. maintain necessary documents as per local government and regulatory requirement		3	2	1
	PC35. analyze the records and glean various trends from the same		3	2	1
		Total	100	40	60