



Model Curriculum

1. Protective and Marine Painter

SECTOR : PAINTS AND COATINGS

SUB-SECTOR: APPLICATION

OCCUPATION: INDUSTRIAL PAINT APPLICATION

REF ID : PCS/Q5109, V1.0

NSQF LEVEL : 4




Skill India
सौजन्य भारत - कुशल भवत

PAINTS AND
COATINGS
SKILL COUNCIL




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National
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COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

PAINTS AND COATINGS SKILL COUNCIL

for

SKILLING CONTENT : PARTICIPANT HANDBOOK

Complying to National Occupational Standards of
Job Role/ Qualification Pack: **'Protective and Marine Painter' QP No. 'PCS/Q5109 NSQF Level 4'**

Date of issuance: **November 10th, 2016**

Valid up to*: **March 31st, 2018**

*Valid up to the next review date of the Qualification Pack or the
'Valid up to' date mentioned above (whichever is earlier)


Authorized Signatory
(Paints and Coatings Skill Council)



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Protective and Marine Painter

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Protective and Marine Painter”, in the “Paints and Coatings” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Protective and Marine Painter		
Qualification Pack Name & Reference ID. ID	PCS/Q5109, v1.0		
Version No.	1.0	Version Update Date	
Pre-requisites to Training	8 th Standard passed		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Know about the sector: Discuss the Paints and Coatings sector in India and its sub-sectors • Know about Protective and Marine Painting : What is Protective and Marine Painting ; its benefits and features • Analyse the substrate, erect scaffolding, prepare the surface and inspect the surface profile. • Demonstrate how to paint prepared surface with Brush, Roller, Airless spray gun. • Inspect the painted surface and recognise good quality finish and identify defects. Understand ISO 12944 standards. • Maintain tools, equipment and materials required: Identification and handling of tools and materials. • Demonstrate various skills: Performance of behavioural, professional, technical and communication skills • Understand safety: Work in a safe manner without endangering your health and that of your colleagues 		



This course encompasses 6 out of 6 National Occupational Standards (NOS) of "Protective and Marine Painter" Qualification Pack issued by "Paints and Coatings Skill Council".

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Introduction</p> <p>Theory Duration (hh:mm) 06:00</p> <p>Practical Duration (hh:mm) 00:00</p> <p>Corresponding NOS Code Bridge Module</p>	<ul style="list-style-type: none"> Understand General Discipline in the class room (Do's & Don'ts) Understand the scope of the Paints and Coatings sector in India with its sub sectors Understand the Protective and Marine Coating segment Understand the role of a Protective and Marine Painter in the industry Advantages and benefits and features of Protective and Marine Coatings as well as its shortcomings Learn and Practice Basic skills of communication 	Laptop, white board, marker, projector
2	<p>Prepare to Paint The Substrate</p> <p>Theory Duration (hh:mm) 30:00</p> <p>Practical Duration (hh:mm) 50:00</p> <p>Corresponding NOS Code PCS/N5110</p>	<ul style="list-style-type: none"> Understand the various types of protective and marine coatings, their characteristics and where they are used. Compare and explain the differences between the various protective and marine coatings. Understand the composition of protective and marine coatings and its chemistry. Learn the basics of protective and marine coatings manufacture. Learn to study customer drawings and specifications for use of a suitable coating. Check Climatic Conditions before Surface preparation Inspect the surface Understand the various methods for surface cleaning and surface preparation and its merits and demerits. Inspect the surface profile after surface preparation Rectify surface imperfections eg. weld spatters Erection of a scaffolding, if required. Check its stability. Understand the requirements of ISO 12944 standards, SSPC standards for surface preparation and surface profiles and NACE standards. 	<p>Laptop, white board, marker, projector, rope, first aid kit.</p> <p>Wire Brush, Power tool for surface cleaning, Sand/Shot/Grit Blasting Machine, Dust filters, 3 stage filter regulators, Air Compressor</p>
3	<p>Paint The substrate</p> <p>Theory Duration (hh:mm) 30:00</p>	<ul style="list-style-type: none"> Read Product data sheet and Material Safety Data sheet before using the Paint. Understand the various types Epoxy, Polyurethane and Other Paints used for protection of surface. 	Laptop, white board, marker, projector



Sr. No.	Module	Key Learning Outcomes	Equipment Required
	<p>Practical Duration (hh:mm) 60:00</p> <p>Corresponding NOS Code PCS/N5111</p>	<ul style="list-style-type: none"> Mix the two/ three component paint as per instruction given in the manufacturer's product datasheet Ensure proper mixing of the paint with the help of a pneumatic stirrer. Mask the area which is not to be coated Make proper arrangements for air less spray machine by adjusting the pressure and the orifice size. Apply paint on the substrate as per manufacturer's instruction and customer's specification Check the wet film thickness of the coating with help of WFT gauge, to ensure the required dry film thickness (DFT) Inspect the painted surface after the recommended drying for surface appearance and defects. Check the dry film thickness and adhesion of the coating. 	<p>Stirrer, Spray gun air assisted, Airless brushes, rollers</p>
4	<p>Co-ordinate with colleagues and/or customers</p> <p>Theory Duration (hh:mm) 08:00</p> <p>Practical Duration (hh:mm) 04:00</p> <p>Corresponding NOS Code PCS/N9901</p>	<ul style="list-style-type: none"> Understand customer requirements and specifications Learn about various performance indicators, meaning of targets and timelines and how to communicate about these with your colleagues and customers Learn appropriate behavioural skills whilst dealing with colleagues/co-workers Learn how you can contribute to improving customer satisfaction 	<p>Laptop, white board, marker, projector</p>
5	<p>Maintain standards of product / service quality</p> <p>Theory Duration (hh:mm) 12:00</p> <p>Practical Duration (hh:mm) 10:00</p> <p>Corresponding NOS Code PCS/N9902</p>	<ul style="list-style-type: none"> Learn about quality requirements for the protective and marine painting process Understand how quality is defined, various tests and their acceptance criteria, and how standards can be achieved Learn about various equipment used for application and quality tests and how to use them Learn to meet and exceed quality requirements of a customer 	<p>Laptop, white board, marker, projector</p>



Sr. No.	Module	Key Learning Outcomes	Equipment Required
6	<p>Maintain OH&S standards and follow environmental standards</p> <p>Theory Duration (hh:mm) 06:00</p> <p>Practical Duration (hh:mm) 16:00</p> <p>Corresponding NOS Code PCS/N9903</p>	<ul style="list-style-type: none"> Learn about health hazards of the ingredients used in protective and marine coatings as well as its application process. Learn the importance and use of personal protective equipment Learn to handle chemical, paints materials, tools and equipment in a safe manner Learn procedures to minimise risks of inhalation and injury Become aware of the hazards in the application process and how to prevent/eliminate them Understand methods and precautions to be taken for safe disposal of waste generated in the coating process Learn about safety symbols and signs in a plant/site environment and how to interpret and adhere to them 	Laptop, white board, marker, projector
7	<p>Maintain IPR of organisation and customers</p> <p>Theory Duration (hh:mm) 04:00</p> <p>Practical Duration (hh:mm) 04:00</p> <p>Corresponding NOS Code PCS/N9904</p>	<ul style="list-style-type: none"> Learn to explain the meaning of IPR and the various confidential information and trade secrets in an organisation Understand why protection of IPR and trade secrets are critical for a business Learn about your responsibilities in maintaining IPR and trade secrets of your organisation and customers 	Laptop, white board, marker, projector
	<p>Total Duration</p> <p>Theory Duration 96:00</p> <p>Practical Duration 144:00</p>	<p>Unique Equipment Required: First aid kit</p>	

Grand Total Course Duration: 240Hours, 0 Minutes

(This syllabus/ curriculum has been approved by [Paints and Coatings Skill Council](#))



Trainer Prerequisites for Job role: “Protective and Marine Painter” mapped to Qualification Pack: “PCS/Q5109, v1.0”

Sr. No.	Area	Details
1	Description	A Protective and Marine Painter is an individual who coats large surface areas and substrates that need protection from natural elements such as fire or water, requiring high performance and protection from corrosive environment. The coating is carried out as per customer requirements and as set quality standards and specification.
2	Personal Attributes	A Protective and Marine Painter should undertake physical labour; work in a paint-redolent environment; have good eye-sight and no colour blindness; have no fear of height and; work in hot and humid or coastal areas.
3	Minimum Educational Qualifications	12 th standard in any discipline
4a	Domain Certification	Certified for Job Role: “Protective and Marine Painter” mapped to QP: “PCS/Q5109, 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: “MEP/Q0102”. Minimum accepted % as per respective SSC guidelines is 80%.
5	Experience	<ul style="list-style-type: none"> 2-year experience of Industrial Paint application / project management and relevant training or teaching experience.



Annexure: Assessment Criteria

Assessment Criteria	
Job Role	Protective and Marine Painter
Qualification Pack	PCS/Q5109, v1.0
Sector Skill Council	Paints and Coatings

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 60% aggregate and in each NOS.
6	The marks are allocated PC wise; however, every NOS will carry a weight age in the total marks allocated to the specific QP

	Performance Criteria	Total Marks (300)	Out of	Theory	Skills Practical
PCS/N5110 Prepare to Paint the Substrate	PC1. Check Humidity and temperature suitability for the process	50	5	2	3
	PC2. Inspect substrate for oil/grease, dirt and imperfections		5	2	3
	PC3. Check durability of scaffolding for personal safety		5	2	3
	PC4. Ensure proper masking of materials in the surrounding		5	2	3
	PC5. Erect the scaffolding as per standard operating procedure		5	2	3
	PC6. Remove oil /grease		5	2	3
	PC7. Prepare surface for painting using wire brushing		5	2	3
	PC8. Ensure no oil/grease, dirt, soil, salts and other contaminants are present on the surface		5	2	3
	PC9. Check whether surface profile is as per company's standards		5	2	3
	PC10. Treat for any imperfections		5	2	3
	POINTS		50	20	30
	TOTAL POINTS				50



	Performance Criteria	Total Marks (300)	Out of	Theory	Skills Practical
PCS/N5111 Paint the substrate	PC1. Mix two components i.e. epoxy and polyurethane in given ratio	50	3	1	2
	PC2. Fit air driven agitator with pressure pot for continuous mixing while application		3	1	2
	PC3. Ensure proper working of painting machine and airless spray gun		3	1	2
	PC4. Check durability of scaffolding		3	1	2
	PC5. Ensure proper masking of materials in the surrounding		3.5	1.5	2
	PC6. Adjust pressure and size of orifice for spraying paint		3.5	1.5	2
	PC7. Climb the scaffolding		3.5	1.5	2
	PC8. Apply paint on substrate with airless spray gun as per company's standards		3.5	1.5	2
	PC9. Apply weed fowling at the bottom part of ship which remains submerged in water with airless spray gun as per company's standards		3.5	1.5	2
	PC10. Keep substrate for drying as per company' standards		3.5	1.5	2
	PC11. Check adhesion of paint as per company's standard		3.5	1.5	2
	PC12. Check paint coat is even ad without imperfections		3.5	1.5	2
	PC13. Check wet film thickness		3.5	1.5	2
	PC14. Check dry film thickness		3.5	1.5	2
	PC15. Compare with standard provided		3	1	2
	POINTS		50	20	30
	TOTAL POINTS			50	
	Performance Criteria	Total Marks (300)	Out of	Theory	Skills Practical
PCS/N9901 Coordinate with colleagues and/or customers	PC1. receive job order and instructions from reporting superior	50	0.5	0.0	0.5
	PC2. understand the work output requirements, targets, performance indicators and incentives		2.0	0.5	1.5
	PC3. deliver quality work on time and report any anticipated reasons for delays		2.0	0.5	1.5
	PC4. escalate unresolved problems or complaints to the relevant senior		2.0	0.5	1.5
	PC5. communicate maintenance and repair schedule proactively to the superior		2.0	0.5	1.5
	PC6. receive feedback on work standards		1.0	0.0	1.0
	PC7. document the completed work schedule and handover to the superior		2.0	0.5	1.5
	PC8. exhibit trust, support and respect to all the colleagues in the workplace		1.0	0.25	0.75



PC9. aim to achieve smooth workflow	2.0	0.5	1.5
PC10. help and assist colleagues with information and knowledge	1.0	0.0	1.0
PC11. seek assistance from the colleagues when required	1.0	0.25	0.75
PC12. identify the potential and existing conflicts with the colleagues and resolve	1.0	0.25	0.75
PC13. pass on essential information to other colleagues on timely basis	1.0	0.0	1.0
PC14. maintain the etiquette, use polite language, demonstrate responsible and disciplined behaviours to the colleagues	2.0	0.5	1.5
PC15. interact with colleagues from different functions clearly and effectively on all aspects to carry out the work among the team and understand the nature of their work	1.0	0.25	0.75
PC16. put team over individual goals and multi task or share work where necessary supporting the colleagues	2.0	0.0	2.0
PC17. highlight any errors of colleagues, help to rectify and ensure quality output	1.0	0.25	0.75
PC18. work with cooperation, coordination, communication and collaboration, with shared goals and supporting each other's performance	1.0	0.0	1.0
PC19. ask more questions to the customers and identify their needs	1.0	0.25	0.75
PC20. possess strong knowledge on the product, services and market	2.0	0.5	1.5
PC21. brief the customers clearly on potential costs and hazards	1.0	0.25	0.75
PC22. communicate with the customers in a polite, professional and friendly manner	1.0	0.25	0.75
PC23. build effective but impersonal relationship with the customers	0.5	0.25	0.25
PC24. ensure the appropriate language and tone are used with customers	1.0	0.25	0.75
PC25. listen actively and have a two-way communication	1.0	0.25	0.75
PC26. be sensitive to the gender, cultural and social differences such as modes of greeting, formality, etc.	1.0	0.25	0.75
PC27. understand the customer expectations correctly and provide the appropriate products and services	2.0	0.5	1.5
PC28. understand the customer dissatisfaction and address or escalate their complaints effectively	2.0	0.5	1.5
PC29. maintain a positive, sensible and cooperative manner all time	1.0	0.25	0.75
PC30. ensure to maintain a proper body language, dress code, gestures and etiquettes towards the customers	1.0	0.25	0.75



	PC31. avoid interrupting the customers while they talk		1.0	0.0	1.0
	PC32. ensure to avoid negative questions and statements to the customers		1.0	0.0	1.0
	PC33. inform the customers on any issues or problems before hand and also on the developments involving them		2.0	0.5	1.5
	PC34. ensure to respond back to the customer immediately for their voice messages, e-mails, apps, etc.		1.0	0.0	1.0
	PC35. develop good rapport with the customers and promote other products and services		2.0	0.5	1.5
	PC36. seek feedback from the customers on their understanding to what was discussed		1.0	0.0	1.0
	PC37. explain the terms and conditions clearly		2.0	0.5	1.5
	POINTS		50	10	40
	TOTAL POINTS				50
PCS/N9902 Maintain standards of product/ service quality	PC1. keep in mind the profiles of expected customers	50	2.0	0.5	1.5
	PC2. understand the target customers and their product/ service quality requirements as defined by the company		3.0	0.5	2.5
	PC3. receive superior's/ customer feedback regularly		2.0	0.0	2.0
	PC4. aim to build a good connect with the customers through quality product/ service		2.0	0.5	1.5
	PC5. keep tab on frequent discussions with regular customers on general likes and dislikes in the market, latest trends, customer expectations, etc.		2.0	0.5	1.5
	PC6. receive updates on regular feedbacks from the clients on current service, complaints, and improvements to be made, etc.		2.0	0.5	1.5
	PC7. if necessary, compulsively seek customer rating of product/ service in order to help develop a set of regularly improved procedures		2.0	0.5	1.5
	PC8. demonstrate quality orientation at all level		4.0	1.5	2.5
	PC9. aim to gain their long lasting loyalty through satisfaction		3.0	1.0	2.0
	PC10. ensure 100% customer satisfaction via product/ service quality		3.0	0.5	2.5
	PC11. treat the customers fairly and with due respect		3.0	0.5	2.5
	PC12. focus on executing company's marketing strategies and product development needs		3.0	1.0	2.0



	PC13. focus on enhancing brand value of company by maintaining or enhancing quality standards		3.0	1.0	2.0
	PC14. ensure that customer expectations are met		2.0	0.5	1.5
	PC15. learn to read customers' needs and wants		2.0	0.5	1.5
	PC16. willingly accept and implement new and innovative products and services that help improve customer satisfaction		3.0	1.0	2.0
	PC17. communicate feedback of customer to senior, especially, the negative feedback		2.0	0.5	1.5
	PC18. maintain close contact with the customers and focus groups		2.0	0.5	1.5
	PC19. offer promotions to improve product satisfaction level to the customers periodically		3.0	1.0	2.0
	PC20. weigh the cost of fulfilling unscheduled customer requests, consult with senior and advise the customer on alternatives		2.0	0.5	1.5
	POINTS		50	13	37
	TOTAL POINTS				50
PCS/N9903 Maintain O&HS standards and follow environmental norms	PC1. assess the various health, safety and environmental hazards in the work areas	50	1.5	0.4	1.1
	PC2. take necessary steps to eliminate or minimize the hazards		1.0	0.4	0.6
	PC3. analyze the causes of accidents at the workplace		1.5	0.4	1.1
	PC4. suggest measures to prevent such accidents from taking place		1.5	0.4	1.1
	PC5. take preventive measures to avoid risk of burns and other injury due to contact with hot surfaces, gas, fire, hot fluids/ liquids, etc.		1.5	0.4	1.1
	PC6. suggest methods to improve the existing safety procedures at the workplace		1.5	0.4	1.1
	PC7. dispose waste in the designated areas safely as per company's policies and rules		1.5	0.4	1.1
	PC8. maintain appropriate ventilation in the rooms while there is more exposure to paint vapours		1.0	0.4	0.6
	PC9. avoid dumping unused cans to safeguard the environment		1.0	0.0	1.0
	PC10. be aware of the locations of fire extinguishers, emergency exits, etc.		1.0	0.4	0.6
	PC11. practice correct emergency procedures		1.5	0.4	1.1
	PC12. check and review the storage areas frequently		1.5	0.4	1.1
	PC13. stack items in an organized way and use safe lifting techniques to reduce risk of injuries from handling procedures at the storage areas		1.5	0.4	1.1



PC14. ensure to be safe while handling materials, tools, acids, chemicals, equipment, etc.	1.0	0.4	0.6
PC15. store the chemicals and acids in a well-ventilated and locked areas with warning signs displayed	1.5	0.4	1.1
PC16. ensure safe techniques while moving furniture and fixtures	1.5	0.4	1.1
PC17. ensure to reduce risk of injury from use of electrical tools	1.5	0.4	1.1
PC18. read the manufacturer's manual carefully before use of any equipment	1.0	0.0	1.0
PC19. unplug the electrical equipment before performing maintenance	1.0	0.4	0.6
PC20. keep the floors free from oil, water and grease to avoid slippery surface	1.0	0.4	0.6
PC21. use rubber mats in the places where floors are constantly wet	1.0	0.0	1.0
PC22. ensure safety from injuries of cuts to loss of fingers, while handling sharp hazardous tools and equipment	1.5	0.4	1.1
PC23. use flat surfaces, secure holding and protective wear while using such sharp tools	1.5	0.4	1.1
PC24. use health, safety and environmental protection practices for storing, cleaning, and maintaining tools, equipment, and supplies	1.5	0.4	1.1
PC25. practice ergonomic lifting, bending, or moving equipment and supplies	1.5	0.4	1.1
PC26. identify the requirement for maintaining environmental norms	1.0	0.4	0.6
PC27. comply with the environmental safety norms while on work to prevent accidents and health hazards	1.0	0.4	0.6
PC28. follow company policies and rules regarding use of hazardous materials to avoid health, safety and environmental impacts caused by them	1.0	0.4	0.6
PC29. ensure the employees have access to first aid kit when needed	1.0	0.0	1.0
PC30. ensure all equipment and tools are stored and maintained properly and safe to use	1.0	0.4	0.6
PC31. ensure to use personal protective equipment and safety gear such as gloves, mask, headwear, footwear, glasses, goggles, etc. for specific tasks and work conditions where required	1.5	0.4	1.1
PC32. ensure to display safety signs at places where necessary for people to be cautious	1.5	0.4	1.1
PC33. ensure electrical precautions such as insulated clothing, adequate equipment insulation, dry work area, switch off the power supply when not required, etc.	1.5	0.4	1.1



	PC34. ensure availability of general health and safety equipment such as fire extinguishers, first aid equipment, safety equipment, clothing, safety installations such as fire exits, exhaust fans, etc.		1.5	0.4	1.1
	PC35. document all the first aid treatments, inspections, etc., conducted to keep track of the safety measures undertaken		1.0	0.4	0.6
	PC36. document all the environmental hazards caused and the measures undertaken to comply with the established safety procedures of the workplace		1.0	0.0	1.0
	PC37. report to the supervisor on any problems and hazards identified and any breach of environmental procedures.		1.0	0.4	0.6
	PC38. ensure zero accident at workplace		1.0	0.4	0.6
	PC39. adhere to safety standards and ensure no material damage		1.0	0.4	0.6
	PC40. take necessary action and correct any environmental hazards caused		1.0	0.4	0.6
	POINTS		50	14	36
	TOTAL POINTS				50

	Performance Criteria	Total Marks (300)	Out of	Theory	Skills Practical
PCS/N9904 Maintain IPR of organisation and customer	PC1. prevent leak of new plans and designs to competitors by reporting on time	50	7.0	0.0	7.0
	PC2. be aware of any of company's product or design patents		8.0	1.0	7.0
	PC3. report IPR violations observed in the market, to supervisor or company head		8.0	2.0	6.0
	PC4. read copyright clause of the material published on the internet and any other printed material		8.0	0.5	7.5
	PC5. protect infringement upon customer's business or design plans		8.0	2.0	6.0
	PC6. consult supervisor or senior management when in doubt about using information available from customer		6.0	0.0	6.0
	PC7. report any infringement observed by anyone in the company		5.0	0.0	5.0
	POINTS		50	5.5	44.5
	TOTAL POINTS				50
	GRAND TOTAL	300			