



Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

INDIAN PLUMBING SKILLS COUNCIL

for the

MODEL CURRICULUM

Complying to National Occupational Standards of
Job Role/Qualification Pack 'Plumber (General)' OP No. 'IPSC/Q00104 NSQF Level 3'

Date of Issuance: December 11th, 2015

Valid up to: December 10th, 2016

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



Prof. (Dr.) Virendra Kumar Paul
(Indian Plumbing Skills Council)

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Plumber (General)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Plumber (General)”, in the “Plumbing” Sector/Industry and aims at building the following key competencies amongst the learner

Program Name	Plumber (General)		
Qualification Pack Name & Reference ID.	PSC/Q0104,		
Version No.	1.0	Version Update Date	01-12-2015
Pre-requisites to Training	5th Class/Standard pass (To be revised to 10 th Class/Standard post 31st December, 2017). In lieu of minimum qualification candidate has worked as a unskilled helper for minimum period of two years in the same role.		
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Understand pre-installation related activities involving understanding of the task, material preparation, taking measurements and marking the positions. • Install pipes and sanitary fixtures, basic quality check of the installed fittings and fixtures, testing, commissioning and handover activities. • Understanding the installed system, basic inspection and identification of the fault in the system. • repair like replacement etc. with minimal damage to other systems. • Receive work instructions, discuss task status and receive feedback. • Interact with colleagues within and outside the team. • Communicate and discuss work flow, problems faced, possible solutions and pass on the learning within and outside the team. • Report to senior about process flow improvements that can reduce anticipated or repetitive hazards with regards to:- <ul style="list-style-type: none"> • Mishandling of tools and equipment. • Electrical or any other problem at the construction site that could result in accident. • Maintain healthy and safe at secure working environment. • Undertake work independently, be a good team player, be a competent listener for taking instructions. 		

This course encompasses four out of four National Occupational Standards (NOS) of “Plumber (General)” Qualification Pack issued by “SSC: Indian Plumbing Skills Council”.

Sr. No.	Module	Key Learning Outcomes	Equipment Required
1	<p>Installation</p> <p>Theory Duration (hh:mm) 160:00</p> <p>Practical Duration (hh:mm) 240:00</p> <p>Corresponding NOS Code PSC/ N 0101</p>	<ul style="list-style-type: none"> • Introduction of basic plumber work • Knowledge of existing plumbing system and site management • Perform operations/procedures on types of pipes • Knowledge of basic building construction • Perform operations/procedures on wall and ceiling • Preparation of mortar • Perform installations of fixtures • Perform operations/procedures on bath-wares and tap-wares • Perform various plumbing related operations/procedures • Understand and perform Testing using various methods • Clear the work area at site and waste disposal • Follow guidelines for quality in work, control of wastage and damage • Understand various types of safety controls • Work flow and procedures at site • Handover/takeover of site and equipment and work area • Work practices for plumbers • Understand significance of the individual’s role in a work flow • Visit to actual work site • Information related to various pipes and fittings & fixtures • Understand units and perform measurements • Perform estimation and costing • Prepare and Interpret drawings • Understand the role in a team • Repair of fixtures and fittings 	<p>Pipe wrench, parrot pliers, slide wrench, Tap set and Die set complete, pipe bending machine, hacksaw, pipe vice, Screw drivers set, Double Ended spanner set, Allen Key set, Drill bit set, Caulking tools, Hammers, Files, measuring tape, plumb, L-Square, Spirit Level, Square Trowel, trowel-mason, Power Stone Cutter, Hammer-mason, blocking chisel, Hydraulic Testing Machine, Smoke Generator for testing of pipes and joints, balloon sets, weighing machine, pressure gauge, Powered pipe threading machine, Taps/faucets, shower head complete, sink, flushing tanks, urinal, urinal flush, bidet, bath tub, geyser, Clamps and Hangers, pipes, fittings and accessories as required.</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> Learn use of power tools and machines at site Knowledge of material storing, stacking and specifications 	
2.	<p>Repair</p> <p>Theory Duration (hh:mm) 32:00</p> <p>Practical Duration (hh:mm) 48:00</p> <p>Corresponding NOS Code PSC/ N 0102</p>	<ul style="list-style-type: none"> Repairing of various types of fitting and fixtures <ul style="list-style-type: none"> Identify the cause/fault Establish a sequence of repair activities Decommission Locate the component to be replaced/repared, Cut defective structures, Measure correctly, Replace Test Commissioning 	
3.	<p>Coordination</p> <p>Theory Duration (hh:mm) 16:00</p> <p>Practical Duration (hh:mm) 24:00</p> <p>Corresponding NOS Code PSC/ N 0108</p>	<ul style="list-style-type: none"> Communicate within the team Communicate outside the team Plan and prepare Comprehend Worker manual Skills in the team members Understand responsibility for work Working in a team Report structure and workflow management Work process communication and reporting of disruptions Understand the role in team 	
4.	<p>Environment, health and safety</p> <p>Theory Duration (hh:mm) 22:00</p> <p>Practical Duration (hh:mm) 34:00</p> <p>Corresponding NOS Code PSC/ N 0109</p>	<ul style="list-style-type: none"> Identify and select hand tools Identify problems and accuracy reporting Signage and barricade requirements at site Awareness of the signs of poor performance of tools and inefficiency Pre operational study as per manual Information regarding various first aid procedures Hazard analysis at sites the work environment welfare facilities 	<p>Face Protection; Face mask/shield , Head protection: Safety Helmet (hard hat), Eye protection (safety glasses with rigid side shields), Safety Shoes/ footwear, Hand protection: hand gloves based on exposure presented, Long pants and shirts with sleeves extending over the shoulders, High visibility vest or other outer most high visibility clothing, Welder's caps, Approved liners, Tight weave cotton, Drawstrings in clothing. Fire extinguishers</p>

Sr. No.	Module	Key Learning Outcomes	Equipment Required
		<ul style="list-style-type: none"> • guidance for specific types of work • Reporting structure and workflow management in a team • prepare for emergency procedures • Clearance of all work area • Maintenance of equipment • Environmental requirements for dealing with waste • Understand the responsibilities in case of danger • Reporting in the team • Company policies on safety • Evacuation and emergency procedures • Learn from past hazards 	Type A,B,C&D, ladder, safety harness/rope/belt, Ear Protection: ear plugs/mufflers, Stretcher, First aid kit, Fire Alarm bell etc.
	Total Theory Duration (hh:mm) 230:00 Practical Duration (hh:mm) 346:00	Unique Equipment Required: Pipe wrench, parrot pliers, slide wrench, Die set complete, hacksaw, pipe vice, Screw drivers set, Double Ended spanner set, Allen Key set, Drill bit set, Drilling Machine, Caulking tools, Hammers, measuring tape, plumb, L-Square, Spirit Level, Hydraulic Testing Machine, Smoke Generator for testing of pipes and joints, pressure gauge, Powered pipe threading machine, Taps/faucets, shower head complete, sink, flushing tanks, urinal, urinal flush, bidet, bath tub, geyser, Clamps and Hangers, pipes, fittings and accessories as required.	

Grand Total Course Duration: 576 Hours: 00 Minutes

(This syllabus/ curriculum has been approved by Indian Plumbing Skills Council)

Trainer Prerequisites for Job role: “Plumber (General)” mapped to Qualification Pack: “PSC/Q0104, VERSION 1.0”

Sr. No.	Area	Details
1	Job Description	To impart training on Plumber General. The core responsibility includes enhancement of knowledge, refining of understanding and improvement in performance of the trainees. Train the plumbers for installation and repair of basic plumbing systems including those of advanced sanitary fixtures as per manufacturer’s specifications in housing, commercial and institutional setups.
2	Personal Attributes	A Plumber Trainer should be free from socio-economic preferences and prejudice. He/ she should be well aware of new trends, products and techniques in the market. Besides being knowledgeable, he/ she should be energetic, motivating, innovative and good at communication. The trainer should be able to establish rapport with the trainees and employ innovative methods to impart instructions.
3	Minimum Educational Qualifications	Passed 10 th Class or Standard of Central or State Board of Education or equivalent as notified by Ministry of Human Resource Development, Govt. of India.
4a	Domain Certification	<p>“IPSC Certification in Plumber (General)II NSQF level 4 QP Ref Id : PSC/0110, Version 1.0 or equivalent QP with a minimum score of 70 percent”</p> <p>OR</p> <p>“ITI Certificate in plumbing trade with IPSC Certification in Plumber (General) NSQF Level 4 QP Ref Id : PSC/0110, Version 1.0 with a minimum score of 70 percent”</p> <p>OR</p> <p>“Diploma or Degree in Civil or Mechanical Engineering from a recognised institute or university or equivalent qualification as notified by Ministry of Human Resources, Govt. of India with an IPSC Certification in Plumber (General) NSQF Level 4 QP Ref Id : PSC/0110, Version 1.0 with a minimum score of 70 percent”</p>
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack QP Ref Id : SSC/Q1402, Version 1.0 approved by NSDC/NSDA with a minimum accepted score of 60 percent in aggregate.
5	Experience	<p>IPSC Certificate - 3 years.</p> <p>ITI in plumbing trade - 4 years.</p> <p>Diploma or Degree holders or equivalent in engineering - NIL.</p>

Annexure: Assessment Criteria

Assessment Criteria for Plumber (General)	
Job Role	Plumber (General)
Qualification Pack	PSC/Q0104, VERSION 1.0
Sector Skill Council	Plumbing

Sr. No.	Guidelines for Assessment
1	Pre-Assessment Examination- Learner shall be required to undertake a pre-assessment examination to determine the minimum qualification of the candidate.
2	In-course assessment- Learner shall be required to participate in in-class activities.
3	Assignments- Assignments shall be given in-class and have to be completed and handed over to the instructor for evaluation. Non-submission /Late submission of assignments shall be marked as zero.
4	Training/Field Tests- Learner shall be required to participate in demonstrations during site visits.
5	Practical Training- Apprentice training to be done at the site of actual work.
6	Post Learning Assessment Examination- Learner shall be required to undertake a post-assessment to determine his learning's of concepts, theories, use of tools and equipment, and practical applications of procedures, workflow.
7	Passing Qualification Pack- Learner should score a minimum of 50% marks in aggregate with a minimum of 40% in each NOS to pass the qualification pack. Learner shall be exempted to reappear in a NOS provided he has scored minimum of 50% marks in a NOS though he has failed to score a minimum 50% marks in aggregate to pass the qualification pack.
8	In case of successfully passing one or more number of NOS(s), the trainee is eligible to take subsequent assessment on the balance NOS(s) to pass the Qualification Pack.

Assessment outcome (NOS Code and Description)	Assessment criteria (PC)	Total Mark (400 MARKS)	Marks Allocation		
			Out Of	Theory	Skills Practical
1. PSC/ N 0101 Installation of basic sanitary fixtures, fittings, related piping and accessories	PC1. understand the task to be done	100	5	2	3
	PC2. assemble pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, caulking tools, or cutting, threading and joining equipment		10	3	7
	PC3. establish the sequence of pipe installations		10	3	7
	PC4. plan installation around obstructions such as electrical wiring, etc.		10	3	7
	PC5. locate and mark the position of pipe installations, connections, passage holes, and fixtures in structures, using measuring instruments such as rulers and levels		10	3	7
	PC6. cut openings in structures to accommodate pipes and pipe fittings, using hand and power tools (if required)		10	3	7
	PC7. measure, cut, thread, and bend pipe to required angle, using hand and power tools or equipment such as cutting, threading and bending equipment		10	3	7
	PC8. hang steel supports from ceiling joists to hold pipes in place (if required)		10	3	7
	PC9. install pipe assemblies, fittings, valves, appliances such as dishwashers and water heaters, and fixtures such as sinks and toilets, using hand and power tools		10	3	7
	PC10. test the joints and fixtures for proper functioning		10	2	8
	PC11. clear the work area and waste disposal		5	2	3
	TOTAL	100	30	70	
2. PSC/ N 0102 Repair of basic sanitary fixtures, fittings, related piping and accessories	PC1. understand the installed plumbing system		5	2	3
	PC2. identify the problem/fault in the system and its cause		5	2	3
	PC3. establish the sequence of repair		5	2	3
	PC4. assemble fittings, fixtures and tools required for the task		5	1	4
	PC5. locate and mark the position of the component to be replaced/repared, using measuring instruments such as rulers and levels		10	3	7
	PC6. cut openings in structures to remove defected pipes and pipe fittings, using hand and power tools		10	3	7

Assessment outcome (NOS Code and Description)	Assessment criteria (PC)	Total Mark (400 MARKS)	Out Of	Marks Allocation	
				Theory	Skills Practical
	PC7. measure, cut, thread, and bend pipes to required angle, using hand and power tools or equipment such as cutting, threading and bending equipment		10	3	7
	PC8. replace with new pipe assemblies, fittings, valves, appliances such as dishwashers and water heaters, and fixtures such as sinks and toilets, using hand and power tools		10	3	7
	PC9. test the joints and fixtures for proper functioning		10	3	7
	PC10. clear the work area and waste disposal		5	2	3
	PC11. deliver the task in time		5	1	4
	PC12. achieve quality finishing in repair of sanitary fixtures and fittings		10	3	7
	PC13. ensure minimal wastage of material		5	1	4
	PC14. ensure minimal damage to other systems		5	1	4
	Total			100	30
3. PSC/N0108 Coordinating with the senior and other working team	PC1. receive work instructions and raw materials from reporting senior	100	5	2	3
	PC2. communicate to reporting senior about task status, repairs and maintenance of tools and equipment as required		5	1	4
	PC3. communicate any potential hazards and expected process disruptions		10	3	7
	PC4. handover completed task to reporting senior		10	2	8
	PC5. receive feedback from reporting senior		10	3	7
	PC6. report any anticipated reasons for delays		10	3	7
	PC7. work as a team with colleagues and share work as per the work load and skills		10	3	7
	PC8. work with colleagues of other teams		5	2	3
	PC9. communicate and discuss work flow related difficulties in order to find solution with mutual agreement		10	3	7
	PC10. taking instructions from the reporting senior		10	3	7
	PC11. report problem/incident etc.		5	2	3
	PC12. put team over individual goals		5	1	4
	PC13. resolve conflicts		5	2	3
Total		100	30	70	
4.PSC/N0109 Maintain a healthy, safe and	PC1. to avoid accidents related to use of sharp tools and equipment	100	15	5	10
	PC2. attend and actively participate in the		10	3	7

Assessment outcome (NOS Code and Description)	Assessment criteria (PC)	Total Mark (400 MARKS)	Marks Allocation		
			Out Of	Theory	Skills Practical
secure working environment	health and safety campaigns organized by the company or any other authority				
	PC3. use or wear safety gear (helmet, gloves, goggles, safety shoes, ear plugs, etc.) as per the rules of the company		10	3	7
	PC4. attend fire drills or any other safety drills organized by the company or any other authority		15	4	11
	PC5. learn first-aid procedure		15	5	10
	PC6. use insect repellents and safe drinking water		10	3	7
	PC7. use site toilets and follow other hygienic practices		15	4	11
	PC8. understand the evacuation and emergency procedures		10	3	7
			100	30	70
TOTAL			400	120	280
Percentage Weightage:				30%	70%
Minimum Pass% to qualify:			50% in aggregate and 40% in a NOS		



Indian Plumbing Sector Skill Council

B/ 168-169, DDA Complex, Okhla Indl. Area, Phase 1, New Delhi 110020, India