

Model Curriculum

Plumber (General)-II

Plumber (General)-II

SECTOR: **PLUMBING INDUSTRY**
SUB-SECTOR: **CONTRACTORS**
OCCUPATION: **PLUMBING**
REFERENCE ID: **PSC/Q0110**
NSQF LEVEL: **4**



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PLUMBER (GENERAL)

CURRICULUM / SYLLABUS

This program is aimed at training candidates for the job of a “Plumber (General)-II”, 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/Q0110		
Version No.	1.0	Version Update Date	01-12-2015
Pre-requisites to Training	8th (To be revised to 11th post 31st December, 2017)		
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 4 out of 4 National Occupational Standards (NOS) of “Plumber (General)” Qualification Pack issued by “SSC: Indian Plumbing Skills Council”.

Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipment Required
1	Installation of basic sanitary fittings and	160hrs	240hrs	<ul style="list-style-type: none"> Introduction of basic plumber work Knowledge of existing 	PSC/ N 0101	Pipe wrench, parrot pliers, slide wrench, Tap



<p>fixtures</p>			<p>plumbing system and site management</p> <ul style="list-style-type: none"> • 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 bathwares and tapwares • Perform various plumbing related operations/procedures • Carry out Testing of installations using various methods • Clear the work area at site and waste disposal • Follow guidelines for quality in work, control of wastage and damage • Types of safety controls • Work flow and procedures at site • Handover/takeover of site and equipment and work area • Work practices for plumbers • Significance of the individual's role • Visit to actual work site • Information related to various pipes and fittings & fixtures • Perform units and measurements • Perform estimation and costing • Interpret drawings • Understand the role in 	<p>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, 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>
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				<ul style="list-style-type: none"> team • Repair of fixtures and fittings • Knowledge of use of power tools and machines at site • Knowledge of material storing, stacking and specifications 		
2	Repair of basic sanitary fittings and fixtures	32hrs	48hrs	<ul style="list-style-type: none"> • Identify the cause/fault • Establish a sequence of repair activities • Locate the component to be replaced/.repaired, • Cut defective structures, • Measure correctly, • Replace • Test 	PSC/ N 0102	
3	Installation and repair of advanced sanitary fixtures	48hrs	72hrs	<ul style="list-style-type: none"> • Identification of advanced plumbing fittings and fixtures • Perform installation and repair of advanced sanitary fixtures • Understand the functioning of taps & valves • Perform maintenance of valves and faucets • Perform maintenance of control devices • Work management at site • Information on techniques related to cutting, bending and joining of fixtures and fittings • Identify defects in the plumbing system like leakages, alignments, failure of joints etc • Information on working and operation of special tools required for installation and repair of advanced sanitary fixtures, power and hand tools • Rating system for 	PSC/ N 0115	Water mixture/Divertor concealed with and without thermostatic control, Concealed Cistern, Wall mounted WC with auto spray, floor mounted bracked for mounting of wall mounted WC, Gas based Geyser complete set, Solar water heater complete set, Hydrpneumatic pumping set for toilet, Jacuzzi, Shower panel, shower cubicle, automatic water level controller with control panel, water level indicator



				<p>sustainable plumbing</p> <ul style="list-style-type: none"> • Risk management 		<p>magnetic type, Walter level indicator pressure type, solenoid control valves, sensor for urinals, wall mounted urinals with sensor, sensor base tap/faucet, Custom made Grease trap, Pre-wall framed structure, CI hub less pipes with fittings and joints, Sovent / Provent System of Soil and Waste Disposal, PEX pipes, Sectionised models: bibcock, pillar cock, angle valve, Ball valve, gate valve, globe valve and check valve, NRV, Foot valve, Divertor Single lever, Single Lever basin mixer, concealed stop cock, PRV, Strainer, Pressure Gauge.</p>
4	Coordination with the senior and other working team	16hrs	24hrs	<ul style="list-style-type: none"> • Communicate with in 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 	PSC/ N 0108	



				<ul style="list-style-type: none"> • Understand Reporting structure and workflow management • Understand work process communication and reporting of disruptions • Understand the role in team 		
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Sr. No.	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding NOS Code	Equipment Required
5	Environment health and safety	22 hrs	34 hrs	<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 guidance for specific types of work Report structure and workflow management in a team prepare 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 Learnings from past hazards 	PSC/ N 0109	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 Type A,B,C&D, ladder, safety harness/rope/belt, Ear Protection: ear plugs/mufflers, Stretcher, First aid kit, Fire Alarm bell etc.
Total Duration:		<u>278</u>	<u>418</u>	Unique Equipment Required:		



Grand Total Course Duration: **696Hours 00 Minutes**

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



Annexure1: Assessment Criteria

Assessment Criteria for Plumber (General)	
Job Role	Plumber (General)-II
Qualification Pack	PSC/Q0110
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
6	Post Learning Assessment Examination- Learner shall be required to undertake a post learning final assessment examination to determine his learning of concepts, theories, use of tools and equipment, and practical applications of procedures, workflow etc.
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.

		Marks Allocation			
		Total Mark (600 MARKS)	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	100	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
	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		5	2	3



	waste disposal				
	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	70
3. PSC/ N 0115 Installation and repair of advanced sanitary fixtures	PC1. understand the task to be done and obtain plans, sections and other specifications	200	10	3	7
	PC2. identify quality assurance requirements		10	3	7
	PC3. assemble fixture components and prepare the required material		10	3	7
	PC4. establish the sequence of the installations		10	3	7
	PC5. plan installation around obstructions such as electrical wiring, etc.		10	3	7
	PC6. locate and mark the position fixtures in structures		10	3	7
	PC7. alter structures and fittings to accommodate the fixtures optimally		10	3	7
	PC8. position and install fixtures to comply with plans, sections		10	3	7



	and other specifications and manufacturers' requirements
	PC9. install and connect fixtures without damage or distortion to fixture, pipe work, the surrounding environment, or to other services
	PC10. understand the installed sanitary fixture
	PC11. identify the problem/fault in the fixture and its cause
	PC12. establish the sequence of repair
	PC13. assemble tools and prepare material required for the task
	PC14. position and repair/replace fixtures or its component to comply with plans/specifications and manufacturers' requirements
	PC15. repair, install and connect fixtures without damage to fixture, pipework, the surrounding environment, or to other services
	PC16. test fixtures joints for proper functioning
	PC17. check completed installed or repaired / replaced fixtures for correct functioning and compliance with specifications
	PC18. achieve quality finishing in

10	3	7
10	3	7
10	3	7
10	3	7
10	3	7
10	3	7
20	6	14
10	3	7
10	3	7
10	3	7



	repair/ replacement of sanitary fixtures				
	PC19. clear the work area and dispose the waste appropriately		10	3	7
		TOTAL	200	60	140
4. 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
			100	30	70



5.PSC/N0109 Maintain a healthy, safe and secure working environment	PC1. to avoid accidents related to use of sharp tools and equipment	100	15	5	10
	PC2. attend and actively participate in the health and safety campaigns organized by the company or any other authority		10	3	7
	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			600	180	420
Percentage Weightage:				30%	70%
Minimum Pass% to qualify:			50% in aggregate and 40% in a NOS		



Annexure2: Trainer Prerequisites for Job role: “Plumber (General)-II” mapped to Qualification Pack: “PSC/Q0110”

Sr. No.	Area	Details
1	Job Description	To impart training on Plumber General-II. 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	“ITI in plumbing with three years of experience in training of plumbing course and with a IPSC Level 4 Certification in Plumber (General)II or Diploma or Degree in Civil Engineering with IPSC Level 4 Certification in Plumber (General)II and 10 th Standard pass with Level 4 Certification in Plumber (General)II” with a minimum score of $\geq 70\%$.
4a	Domain Certification	Certified for Job Role: “ <u>Plumber (General)-II</u> ” mapped to QP: “PSC/Q0110”. Minimum accepted score as 90%.
4b	Platform Certification	Recommended that the Trainer is certified for the Job Role: “Trainer”, mapped to the Qualification Pack: _____”. Minimum accepted score $\geq 60\%$.
5	Experience	ITI in plumbing with four years of experience or Diploma or Degree in Civil Engineering with IPSC Level 4 Certification in Plumber (General)II II and 10 th Standard pass with Level 4 Certification in Plumber (General)II” with a minimum score of $\geq 70\%$.



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-II' QP No. 'PSC/Q0110 NSQF Level 4'

Date of Issuance: December 11th, 2015

Valid up to: December 10th, 2016

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

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