



BN DOCKYARD CO-OPERATIVE SOCIETY TECHNICAL INSTITUTE

Syllabus for the short course

on

PLUMBING AND PIPE FITTINGS TRADE

Total duration 360 hours

BANGLADESH TECHNICAL EDUCATION BOARD

agargaon, sher-e-bangla nagar

Dhaka-1207

List of competencies

01. Making plain surface with file over metal surface
02. Fixing pipe in vice.
03. Cutting pipe with hacksaw and pipe cutter.
04. Setting die stock and tap.
05. Cutting thread
06. Connecting all fitting
07. Fixing of shower rose.
08. Laying out and marking.
09. Cutting of boring grooves in the wall
10. Fixing wooden blocks/Roil plug
11. Making holes with center punch.
12. Bending C. I. pipe and pvc pipe.
13. Making holes with center punch.
14. Fixing brackets.
15. Connecting lead pipe with stop cock.
16. Fixing cistern.
17. Fitting flush pipe and lever with chain handle.
18. Connecting rubber packing around the hole.
19. Setting the ferrule cock.
20. Placing hand wash basin
21. Placing the water closet sink, urinals and kitchen.
22. Laying out and making the bath tub.
23. Fitting the mixing faucet with inlet pipe.
24. Fixing the hand shower set with inlet pipe.
25. Placing the bath tub.
26. Fixing vent pipe.
27. Connecting anti siphoned pipe.
28. Joining of pipe of different type.
29. Fixing holder bat clamp and cowl.
30. Fixing trap.
31. Joining larger dia with small dia pipe.
32. Giving alignment by driving peg for connecting septic tank.
33. Setting up the T in the wall of septic tank.
34. Installing the pvc pipe in between T and septic tank.
35. Brazing metal with blow lamp.
36. Connecting reservoir over the roof.
37. Fitting pump machine.
38. Cleaning and servicing pipe line.

The overall aim of the programme is:

01. To provide technological knowledge and information that will enable the individual to analyze job problems, to determine appropriate solution and perform problem solving tasks.
02. To develop broad technological skill in "Plumbing and pipe fittings job to be done according to plan and specification.
3. To be able to express and recognize the faults and defects of works and conform with the requirement of safety rules and procedure regarding plumbing works.
4. To develop entrepreneurial competencies that will lead to self employment.

Programme.

The courses of study provides for a balance between theory and practice as required by new trends in domestic and foreign employment. Considering the duration of the programme 4 month, there will be a working days = $4 \times 4 \times 6 = 96$ days. The total number of working hours throughout the full course is $96 \times 3 = 288$ of which 60 hours in knowledge and information and rest 228 class hour is skill successful candidate will be awarded the certificate of trade on "Plumbing and pipe fitting" on various grade such as superior, very good, Good, Fair on passing, failure. In complete etc. Students will be required attend the class regularly. At least 85 percent of class attendance will be minimum requirement to qualify.

Entrance requirements:

1. The applicant must be at least sixteen (16) years of age
2. The applicant must be a class VIII students
3. The applicant must be physically fit and of good moral character.
4. The applicant must pass and oral or written entrance examinations.

All classes will be limited to a maximum of 30 students and it is likely due rigorous nature of the course, there might be a dropout so that the final size of the class may not full below 20.

Plumbing and pipe fittings

Duration of the course: 288 hours + 12 hours

Sl. No.	Description of theory	Period
01.	Introduction: Description and importance of plumb system. Purpose of plumbing and pipe fittings. Purpose of plumbing and pipe fitting. Difference between the plumbing and plumber.	2
02.	To know about apprentice, journey man and master craftsman.	2
	To know about the specification of different types of pipes.	0
	To know about the materials used in pipes.	0
03.	To know about the different types of fittings, such as socket, bend, tee, elbow, union, reducer, cross, plug, cap, sanitary tee, Sanitary cross, drop elbow, tee-branch, y-branch, bating etc.	3
04.	To know about the common terms sued in plumbing and pipe fittings system.	2
	To know about the symbols of different fittings and fixing.	0
05.	To know about the remarking of pipe and uses. Make a diagram of water supply pipes with fixtures in an ordinary dwelling house.	2
06.	To know about the plumbing tools and their uses.	3
07.	To know about the pipe bending machine, pipe cutter and hand die stock.	2
08.	To know about the uses and function of pipe vice, c-clamp, adjustment able spanner, chain wrench and pipe wrench.	2
09.	To know about the procedure of cutting thread of pipe, socket and other fitting and their uses.	3
10.	To know about the service connection of pipe.	1
11.	To know about waste pipe, vent pipe and cowl and show the arrangements for a double storied building.	2
12.	To know about the conceal pipe and its uses.	1
13.	To know about the shower rose and its uses.	1
14.	To know about wash hand basin, its placement and uses, To know	2

	about the function of flushing cistern.	
15.	To know about the bath tub and its uses.	1
16.	To know about the varieties of urinals, laundry tray and their uses.	2
17.	To know about the water closet and its uses.	1
18.	To know about the sink and its uses.	1
19.	To know about the pillar cock, facet and stop cock meaning of the term back flow and its effects.	2
20.	State the used of overhead tank for successful operations of plumbing system.	2
	To know the procedure of placing water tanks on the roof of building and its connections with pipe ling.	0
21.	To know about the main supply line and distribution line.	2
	To know about the underground reservoir and its use.	0
22.	Describe with the help of sketch the water passage of pan, commode, inspection pit, septic tank, soak well and its uses.	2
23.	To know the purpose of septic tank, manhole, soak well and inspection pit.	2
	State with sketches of different section of septic tank, manhole and sock well.	0
24.	Define traps, state the uses of traps, describe with the help of sketch the different type of traps, and know how trap seal is lost.	2
25.	To know how siphonic action takes place is the siphon type closet. Know about the flush valve and pressure flush valve. Float valve flanger.	2
26.	To know about the fixing of larger dia and smaller dia of pipe and their uses.	1
27.	To know about the surface drain and its uses	2
	To know about the GI pipe copper and its uses	0
	To know about the pipe joints and their uses	0
	To know about the hydraulic pump and its uses	0
	To know about the brazing and blow lamp	0
28.	To know about the earth work in excavation of trenches and state the method of laying pipe line in the trench.	2
29.	State the procedure of cleaning fixture. Describe how unserviceable fixture is cleaned up.	1
30.	To know the causes of clogging in the pipe line describe the causes of clogging in the waste line and sewer line.	1
31.	State the precaution to be taken to present rapid clogging of the water line and sewer line.	1
32.	State the names of tools and accessories by which water line, commode, pan, drops and sewer line and cleaned.	1
33.	Describe the precaution to be taken during the replacement of fixture.	1
34.	Describe how and why the sewer line, manholes, septic tank, soak pits and inspection pit are cleaned periodically.	1
35.	To know about soil stack and soil pipe and review the course.	1
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Plumbing and pipe fittings

Theory and Practical – Duration 288 hours

Sl. No.	Description of theory	Time in hours		
		Theory	Practical	Total
01.	Practical of making plain surface with file over metal surface	2	6	8
02.	Practical of pipe cutting and remaking	2	9	11
03.	Practical of thread cutting of pipe, socket, nipple and tee	8	36	44
04.	Practice of bending GI pipe	2	6	8
05.	Practice rectangular pipe services connection with different fittings in different way and disconnect the same	2	9	11
06.	Practice shower, rose connection for bath room with necessary fitting.	1	6	7
07.	Practice fitting and fixing of flushing cistern including fixing of brackets.	1	6	7
08.	Practice of connection bibcock shut off gate valve, union elbow, tee, and water meter in the service pipe	2	6	8
09.	Install wash hand basin any of the following type (wall type, leg, type, pedestal type and cabinet type) including fixing of mirror, self stop cock pillar cock, s-trap and dis-connect the same/	3	9	12
10.	Practice of fitting and fixing of bath tub, any one of the following type (Recessed type, corner type, pier type of trace standing type) bath tab, complete with all fittings, inlet and outlet pipe, mixing faucet, hand shower set etc.	1	9	10
11.	Practice of fitting and fixing or urinals of different types such as bowls types, slab or stall type and squatting type including flushing arrangement.	2	6	8
12.	Practice installation of water closets and commode and connect it up to inspection pit	2	9	11
13.	Septic tank and sock well practice connection from over head water tank to distribution pipe line.	2	6	8
14.	practice of trap connection of different type with the floor and water closet	2	3	5
15.	Practice fitting and fixing and jointing of waist water and vent pipe line	2	6	8
16.	Practice of connection larger dia pipe with smaller dia pipe with bracket	1	3	4
17.	Practice of connection larger dia pipe with smaller dia pipe with bracket	1	3	4
18.	Practice connection from main supply line to distribution pipe line.	2	6	8
19.	Practice of fitting and fixing of sink	2	6	8
20.	Practice of connection of surface drain trap	2	6	8

	with pipe line.			
21.	Practice of connection cast iron pipe with the flowing joints (lead caulked joints. collar joint, Mortice joint, wiped joint, flanged joint, expansion joint) and practice laying of pipe under the ground.	2	9	11
22.	Practice of connection from reservoir to overhead water tank with pump	2	3	5
23.	Make an inspection pit and show its connection with the soil pipe and septic tank	2	6	8
24.	Practice horizontal and vertical pipe line leveling of different gradations	1	3	4
25.	Practice brazing with blow lamp or pipe	1	6	7
26.	Practice separation and connection of globe valve	1	3	4
27.	Practice bending of GI pipe and copper pipe with hand tools	0	0	0
28.	Practice cleaning of clogging pipe line	2	6	8
29.	Practice servicing of different fitting such as bibcock, stopcock, gate valve, glove valve, float valve etc	2	6	8
30.	Frequently inspect the installed plumbing system in the campus along with the students and create interest among them	1	9	10
31.	Make a mode of septic tank sock well, inspection pit with the help of mud or lime mortar and show the connection accordingly	1	9	10
32.	Make a project showing connection of pipe line, fixture, fixing of different fittings and connection the same to the sewer line	1	9	10
33.	quiz, test, evaluation etc.	0	0	12
		58	225	295