PUNJAB BOARD OF TECHNICAL EDUCATION

21-A, Kashmir Block Allama Iqbal Town, Lahore

www.pbte.edu.pkTel # 042-99260273 email: rnd.pbte@gmail.com

SAY NO TO CORRUPTION

No: PBTE/R&D/2026/21 Dated: 28-01-2026

NOTIFICATION

In pursuance of the NAVTTC Notification No. (D.G) (SS&C)/2021-QD-1 dated 26.11.2025, it is notified that the newly developed curricula of the following short courses have been approved by National Vocational & Technical Training Commission (NAVTTC) for their implementation with immediate effect in all institutes affiliated with PBTE.

- Advance Health Safety, Environment & Fire Safety Officer (6-months Course)
- Heat Exchanger Maintenance Technician (6-Months Course)
- Quality Assurance & Quality Control Technician (3-Months Course)
- Fabrication Supervisor (3-Months Course)
- Pressure Vessel Maintenance Technician (3-Months Course)

Soft copy of the curricula of the said courses may be downloaded from the website of PBTE i.e. www.pbte.edu.pk/textbooks.html.

SECRETARY

CC to:

1- PS to Chairperson PBTE, Lahore.
2- PA to Secretary PBTE, Lahore.
3- PA to Controller of Examinations PBTE, Lahore.
4- PA to DG Academics TEVTA, Lahore.
5- PA to DG Operations TEVTA, Lahore.
6- The Principals concerned.
7- Deputy Controller of Examinations (Conduct) PBTE, Lahore
8- Deputy Controller of Examinations (Secrecy) PBTE, Lahore.
9- System Analyst PBTE, Lahore.
10-Assistant Controller of Examinations (Technical) PBTE, Lahore.
11-Assistant Controller of Examinations (Conduct) PBTE, Lahore.
12-Assistant Controller of Examinations (Secrecy) PBTE, Lahore.
13-Assistant Controller of Examinations (P&P-I) PBTE, Lahore.
14-Assistant Controller of Examinations (P&P-II) PBTE, Lahore.
15-Assistant Secretary (Recognition) PBTE, Lahore.
16-IPS PBTE, Lahore.
17-IOW PBTE, Lahore.
18-Web Administrator PBTE, Lahore to upload on website of PBTE.
19-Notification File.

DESCON TECHNICAL INSTITUTE LAHORE

Skills for Livelihood

CURRICULUM FOR

FABRICATION SUPERVISOR

Course Code: FS

(3 –Months Course)

(1st Edition: January 2025)

CURRICULUM SECTION
FABRICATION DEPARTMENT
2km Defence road, off 24Km, Multan road,
Mohlanwal, LAHORE
www.dti.edu.pk

TRAINING OBJECTIVES:

The prime objective of this course of Fabrication Supervisor is to develop and enhance the skill level of the incumbent in this trade of construction industry.
Semi-skilled and skilled workers produced by this training would help to reduce unemployment and poverty in society. This curriculum is designed to train the Min Intermediate with Science persons who are facing a lot of shortage of Fabrication Supervisor in the field of construction industry.

This training program will provide opportunities to those who want to equip themselves with such knowledge and skills which will be helpful for their employment after completing this training of 03 months and would enable them to start their own business with professional approach.

Further, this Curriculum is developed by considering the requirements of local and international market and the need of the trade enabling the pass outs to meet the job market to reduce the shortage of Semi-Skilled and Skilled workers in the area.

CURRICULUM SALIENT:

Entry Level	Intermediate with Science
Total Duration of Course	3-Months (12 Weeks)
Total Training Hours	396 hours
Training Methodology	80 % Practical 20 % Theory
Instructional Media	Urdu / English

SKILL PROFICIENCY DETAILS

After completion of the course the trainee must be able to: -

1. Observe all safety precautions about tools and equipment.
2. Common working hand tools (measuring, grinding, cutting tools, welding tools), their use and maintenance.
3. Preparation of working piece.
4. Grinding on working piece.
5. Use pencil grinders and cutting discs for the preparation of piece.
6. Measure, cut and place / stack MS Plate to the given size.
7. Making bevel of the Plate to make it ready for welding.
8. Taking the two welding pieces for joint.
9. Use of fasteners, screw, nails and hardware.
10. Finishing, filling, hacksaw cutting and clearing of metal surface practice.
11. Jointing of metals e.g. bolting, welding, temporary joints and permanent joints.
12. Mark and prepare a job to work on pipes, plates and structures.
13. Tightening and losing techniques of flanges, valves, bends etc.

KNOWLEDGE PROFICIENCY DETAILS

After completion of the course the trainee would have gained knowledge about: -

1. Applicable safety precautions of Pipe & Plate Fabricator working on hand tools, equipment and machine tools.
2. The common types of materials and their uses.
3. The common marking and measuring tools and their uses.
4. The common types of grinders, hacksaws, cutting tools, griping tools commonly used in Pipe and Plate Fabricator working.
5. Common Pipe and structure clamping devices / leveling tools.
6. Common types of fasteners, screws, nails and hardware used.
7. Finishing & priming/painting of job.
8. Common types of flanges, valves, fitting, gaskets and their procedure to loosen and tighten.
9. Common types of joints, their preparation and application.
10. Common types of power tools, hands tools, pneumatic tools and their uses.
11. Common types of beveling and welding techniques.

SCHEME OF STUDY

Fabrication Supervisor

(3 Month Course)

Sr. No	Main Topics	Theory Hrs.	Practical Hrs.	Total Hrs.
1	Fabrication Supervisor Safety	7	0	7
2	Simple Arithmetic	7	0	7
3	Trigonometry	4	10	14
4	Conversions & Geometry	5	17	22
5	Materials & standards	4	15	19
6	Power, Hand Tools & Equipment	5	20	25
7	Pipes	4	12	16
8	Pipe Fittings & Components	6	35	41
9	Grinding / Beveling	2	18	20
10	Gasket Cutting	2	8	10
11	Fasteners	2	4	6
12	Drilling	2	15	17
13	Pipe Bending Fabrication & Cutting	7	55	62
14	Structure Fabrication	5	20	25
15	Hydro / Pneumatic Testing	3	24	27
16	Alignment	5	31	36
17	Isometric Drawings	8	34	42
	Total:	**78**	**318**	**396**

DETAIL CONTENTS

Fabrication Supervisor

(3-Months Course)

Sr. No	Main Topics	Theory Hrs.	Practical Hrs.	Total Hrs.
1	**1. Fabrication Supervisor Safety** 1.1 Safety Orientation 1.2 Work Permit & Types 1.3 Work at Height 1.4 Climbing 1.5 House keeping 1.6 Use of Crane 1.7 Importance of Oxygen 1.8 Breathing Apparatus 1.9 Electrical Safety 1.10 Radiology 1.11 Discipline 1.12 First Aid 1.13 Fire & fire safety 1.14 Emergency Response	7	0	7
2	**2. Simple Arithmetic** 2.1 Numbers 2.2 Addition 2.3 Subtraction 2.4 Multiplication 2.5 Division 2.6 Common & Decimal Fractions 2.7 Measurement System	7	0	7
3	**3. Trigonometry** 3.1 Angles 3.2 Pipe Offsets 3.3 Reading of Trigonometry Tables	4	10	14
4	**4. Conversions & Geometry** 4.1 Measurements 4.2 Area 4.3 Volume 4.4 Angle 4.5 Circle 4.6 Parallelogram 4.7 Triangle 4.8 Mass & Weight 4.9 Length	5	17	22

	4.10 Temperature			
5	**5. Materials & Standards** 5.1 Ferrous & Non-Ferrous 5.2 Iron & its Ores 5.3 Steel & Cast iron 5.4 Mild Steel 5.5 Carbon Steel 5.6 Steel Alloys 5.7 Copper 5.8 Brass 5.9 Weight of Materials	4	15	19
6	**6. Power, Hand Tools & Equipment** 6.1 Grinder 6.2 Hack Saw & Power Saw 6.3 Pipe cutter 6.4 Pipe wrench 6.5 Hammers (Ball pein, Cross pein, Mallets, Sledge) 6.6 Screw drivers (Flat & Philips) 6.7 Spanners 6.8 Wrench 6.9 Pliers (Nose & Cutter) 6.10 Miter saw 6.11 Calipers 6.12 Taps & Dies 6.13 Hand electric drill 6.14 Pedestal Drill machine 6.15 Pipe Bender 6.16 Spirit levels 6.17 Chisels & Scrappers 6.18 Measuring tapes & scales 6.19 Plum Bob 6.20 Combination & Try Square 6.21 Micrometer & Dial indicator 6.22 Riveting Tools 6.23 Gasket Cutters 6.24 Tommy bar	5	20	25
7	**7. Pipes** 7.1 Schedules 7.2 Manufacturing 7.3 Tacking & Welding	4	12	16
8	**8. Pipe Fitting & Components** 8.1 Types of bends	6	35	41

	8.2 Flanges 8.3 Elbow 8.4 Reducers 8.4.1 Concentric 8.4.2 Eccentric 8.5 Tee 8.6 Weldolet 8.7 Threadolet 8.8 Cap 8.9 Unions 8.10 Sockets 8.11 Laterals 8.12 "Y" es 8.13 Cross 8.14 Valves			
9	**9. Grinding / Beveling** 9.1 Grinding tools 9.2 Cutting Discs & sizes 9.3 Disc Materials 9.4 Grinding Techniques & Safety 9.5 Beveling	2	18	20
10	**10. Gaskets** 10.1 Gasket materials & types 10.2 Lubrication	2	8	10
11	**11. Fasteners** 11.1 Nuts & Bolts 11.2 Rivets 11.3 Screws 11.4 Studs 11.5 Washers (Plain & Spring)	2	4	6
12	**12. Drilling** 12.1 Marking Flanges & Drilling 12.2 Drill Bits	2	15	17
13	**13. Pipe Bending Fabrication & Cutting** 13.1 Offsets 13.1.1 Single Offset 13.1.2 Double Offset 13.1.3 Cross 13.2 Bends 13.2.1 Quarter Bend 13.2.2 Half Bend 13.2.3 U Bend 13.3 Miter	7	55	62

14	**14. Structure Fabrication** 14.1 Sections 14.2 Riveting 14.3 Bolting 14.4 Alignment 15.5 Beams	5	20	25
15	**15. Hydro / Pneumatic Testing** 15.1 Need of Test 15.2 Testing tools & equipment 15.3 Procedure of testing	3	24	27
16	**16. Alignment** 16.1 Pipe Alignment 16.2 Structure Alignment	5	31	36
17	**17. Isometric Drawings** 17.1 Pipe Symbols 17.1.1 Drafting Symbols 17.1.2 Orthographic Symbols 17.1.3 Flow Diagram Symbols	8	34	42
	Total:	**78**	**318**	**396**

LIST OF PRACTICALS
Fabrication Supervisor
3-months Course

S/N	Description
1	Identify tools, equipment, and personal protective equipment (PPEs) and prepare a report
2	Perform cutting and grinding operations following safety procedures.
3	Practice accurate pipe-beveling techniques.
4	Perform filing operations for surface finishing.
5	Practice leveling and measurement using precision instruments.
6	Fabricate a 90-degree elbow according to drawing specifications.
7	Fabricate a 60-degree elbow ensuring accurate angle alignment.
8	Fabricate a 45-degree elbow maintaining correct dimensions.
9	Fabricate a 30-degree elbow with proper joint preparation.
10	Fabricate a Y-joint using correct alignment and fitting methods.
11	Fabricate a cross joint ensuring proper intersection angles.
12	Fabricate a T-joint maintaining correct orientation and welding position.
13	Perform threading and drilling operations on pipes and fittings.
14	Fabricate an eccentric reducer according to given dimensions.
15	Fabricate a concentric reducer ensuring accurate concentricity.
16	Fabricate a miter-cut elbow using precise cutting techniques.
17	Perform alignment of fittings for correct joint assembly.
18	Carry out tacking and pre-weld fitting operations.
19	Fabricate a complete pipe spool assembly.
20	Perform gas cutting using oxy-acetylene setup safely and efficiently.
21	Interpret and draw isometric drawings with correct directions and symbols.
22	Create isometric drawings with horizontal and vertical rolling.
23	Develop isometric drawings showing double rolling configurations.
24	Practice rolling operations using a plate roller machine.
25	Perform bending operations using a hydraulic bender

LIST OF LABS
Fabrication Supervisor
3-months Course

1. Fabrication Lab
2. Fitters Lab

LIST OF MACHINERY, EQUIPMENT & TOOLS

For 25 Students

Sr. No.	Description	Qty
1	Hydraulic Bending Machine	1
2	Welding Rectifier 400 DC	4
3	Pedestal Grinder 8” Wheel	5
4	Cut Of Saw	5
5	Pencil Grander	3
6	Angle Grinder 4"	5
7	Angle Grinder 5"	5
8	Angle Grinder 7"	5
9	BENCH VICE With 150mm WIDTH JAWS AND 115mm DEPTH	5
10	ELECTRIC HAND DRILL MACHINE 12mm JAW	5
11	Sprit Level Metallic 12”	20
12	PIPE VICE WITH STAND 150mm	5
13	Pipe Cutter 3/8” To 2” Set	10
14	PEDESTAL DRILL MACHINE WITH VICE 12mm	1
15	Tin Cutter 10”	3
16	HAMMER BALL PEIN 500g	10
17	HAMMER STRIGHT PEIN 500g	10
18	HAMMER CROSS PEIN 500g	10
19	Prick Punch 6”	5
20	Center Punch 6”	10
21	M.S Chisel Flat 8”	5
22	Pipe Wrench 12”	5
23	Adjustable Wrench 12”	5
24	Hacksaw Frame	20
25	Tri Square 6” & 8” (20 Each)	20
26	MICROMETER 25mm	10
27	File Flat Rough Half Round 12”	20
28	File Smooth Flat 12”	10
29	File Triangle 12”	10
30	Square File 12”	10
31	Combination Set 12”	5
32	SPANNER RING DOUBLE END 8mm TO 32mm	4
33	OPEN END SPANNER 8mm TO 32mm	5
34	COMBINATION SPANNER 8mm TO 32mm	5
35	SPUD OPEN SPANNER 8mm TO 32mm	5
36	SPUD RING SPANNER 8mm TO 32mm	5
37	SOCKET SET 6mm TO 32mm (1/2”, 3/4")	5
38	Screwdriver Flat 8” To 12”	6
39	Screwdriver Philip 8” To 12”	5
40	MEASURING TAPE 5m	20
41	STEEL SCALE 300mm	20
42	Inside Caliper 8”	10
43	Outside Caliper 8”	10
44	Divider 8”	10
45	Scraper Flat 12”	10
46	VERNIER CALIPER 150mm	20
47	Monkey Wrench 12”	5
48	C Clamp 3” & 6”	10

49	FEELER GAUGE .05mm TO 0.5mm	10
50	Anvil Steel	3
51	LETTER PUNCH 5mm	1
52	NUMBER PUNCH 5mm	2
53	Wrench Pipe 12”	5
54	Wrench Chain Pipe 4”	5
55	SURFACE PLATE 800x800x30mm WITH STAND	1
56	TWIST DRILL SET 1mm TO 10mm	2
57	CHIPPING HAMMER 500g	5
58	Cylinder Acetylene	2
59	Cylinder Oxygen	4
60	Regulator Acetylene	2
61	Regulator Oxygen	2
62	Lighter Spark	4
63	Gas Cutting Torch Set	2
64	WORKTABLE 600x600x800mm	10

LIST OF CONSUMABLES

(For 03 Months Fabrication Supervisor Course)
For 25 Students

Consumable Materials	Qty
Oxygen Gas cylinder	4
Discs (Cutting + Grinding) 7” & 9”	20 Nos.
Liquid Petroleum Gas (LPG) cylinder	2
Flanges	6 Nos.
Fasteners	100
Metal Markers	12 Nos.
Lubricant	2 liters
Clamps	3 Nos.
Holders 500 Amp	3 Nos.
Welding Leads 500 Amp	I Roll
Welding Gloves Leather 10”	20
Coverall	20
Safety Shoes	20
Safety Helmet	20
Safety Google	20
Welding Aprons	20
Ear Plugs	20
Wire Brush 6 rows	10 Nos
Duster Fallen	10 Nos
Marking Stone	10 pkt
Emery Paper 1 No. & 2 No.	12

EMPLOYABILITY OF PASS-OUTS

After completion of the course successfully, the students would be able to join as Fabrication Supervisor in the construction industry and also, they would be capable of starting their own business. The pass-out of this course may work in the following sectors / areas and positions as skilled professional: -

1. Plant construction (Power houses, Fertilizer plants, Cement plants, and Oil & Gas plants.
2. To start their own business.
3. To work in specific fields like maintenance / shutdown services.
4. To work as contractor / sub-contractor.

QUALIFICATION OF TEACHER / INSTRUCTOR

a) **Instructor**

DAE in Mechanical/B-Tech with minimum **2 years'** professional experience.

b) **Demonstrator**

Matric/Intermediate with minimum 2-Years' experience and the ability to use computer

BOOK REFERENCE

Piping Handbook by Mohinder L. Nayyar
McGraw-Hill Education (Publisher)

Practical Piping Design Handbook by Joseph P. Tedesco
Gulf Publishing Company

Piping and Pipeline Calculation Manual by Philip Ellenberger
Elsevier (Gulf Professional Publishing)

CURRICULUM DEVELOPMENT COMMITTEE

Name of Course	Fabrication Supervisor
Duration of Course	3-Months

Evaluation of Curriculum

The curriculum development is a continuous process; a follow-up committee should be formed to check its proper implementation and evaluation. It is recommended that the evaluation committee should be formulated on a permanent basis.
The committee may comprise the following:

1. Curriculum Experts
2. Teacher Trainers
3. Subject Specialists
4. Curriculum Designer
5. Industrial Experts

The Committee will be expected to:

1. Evaluate the shortcomings and achievements of the curriculum.
2. Remain in contact with the teacher to obtain feedback.
3. Suggest proposals for the amendment/Revision of course.

Sr#	Name
1	Zaid Bin Sultan HOD Fabrication Department (Convener) Descon Technical Institute Lahore.
2	Muhammad Anwar Fabrication Foreman (Member) Briter Engineering Company Pvt ltd, Lahore
3	Safdar Bukhari Fabrication Incharge (Member) Briter Engineering Company Pvt ltd, Lahore