



FRONTLINE PROFESSIONAL ENGINEERS ACADEMY



Contact: +91 7058401762 / +91 7058738101

<https://industrialmanpowerservices.com>; pipingdesign@industrialmanpowerservices.com;
frontlineprofessionalpune@gmail.com

Piping Design Engineering Program

By

FRONTLINE PROFESSIONAL ENGINEERS ACADEMY

Syllabus

1.0	DEFINITION OF PIPING ENGINEERING	
1.1	PIPING ENGINEERING : INTRODUCTION & ROLE IN INDUSTRY	04
1.2	IMPORTANCE OF PIPING ENGINEERING	05
1.3	PIPING CLASS PURPOSE	07
2.0	PIPING DESIGN	08
2.1	BASICS OF PIPING SYSTEM	08
2.2	ABBREVIATIONS	08
2.3	PIPE SIZES	09
2.4	PIPE SCHEDULES (SCH)	10
2.5	INTERNAL DIAMETER (ID) OF PIPE	14
2.6	PIPE THICKNESS CALCULATIONS	15
2.7	DIFFERENCE BETWEEN PIPE AND TUBE	19
2.8	PIPING DESIGN CODES & STANDARDS	21

- Address: Vitthal Plaza Building, beside Cafe D, Hanuman Temple Road, Laxmi Chowk, Hinjewadi Phase-1, Pin – 411057



FRONTLINE PROFESSIONAL ENGINEERS ACADEMY



Contact: +91 7058401762 / +91 7058738101

<https://industrialmanpowerservices.com>; pipingdesign@industrialmanpowerservices.com;
frontlineprofessionalpune@gmail.com

3.0	PIPE, FITTINGS & VALVES	41
4.0	PID (PROCESS & INSTRUMENTATION DIAGRAM)	58
5.0	PIPING ENGINEER INTERACTION WITH OTHER DISCIPLINE	65
6.0	PIPING LOADING CONDITIONS	68
7.0	PLANT LAYOUT CONCEPT & GENERAL GUIDE LINES	73
8.0	OVERHEAD & ACCESS CLEARANCE	76
9.0	PIPING DESIGN GUIDE LINES	79
10.0	PIPE RACK DESIGN	84
11.0	EQUIPMENT SPACING IN PROCESS PLANT	93
12.0	MAINTAINCE ACCESS REQUIREMENT	95
13.0	VENT & DRAIN PHILOSOPHY IN PIPING	98
14.0	SAMPLING LOCATION FOR PIPES	100
15.0	HEAT TRACING REQUIREMENT FOR PIPES	101
16.0	PRV & PSV IN PIPING SYSTEMS	102
17.0	STEAM TRAP CONCEPT FOR PIPING SYSTEMS	104

-
- **Address:** Vitthal Plaza Building, beside Cafe D, Hanuman Temple Road, Laxmi Chowk, Hinjewadi Phase-1, Pin – 411057



FRONTLINE PROFESSIONAL ENGINEERS ACADEMY



Contact: +91 7058401762 / +91 7058738101

<https://industrialmanpowerservices.com>; pipingdesign@industrialmanpowerservices.com;
frontlineprofessionalpune@gmail.com

18.0	PIPE ROUTING REQUIREMNT FOR DIFFERENT PIPING SYSTEMS	106
18.1	COOLING WATER SYSTEMS	106
18.2	INSTRUMENT & PLANT AIR SYSTEM	108
18.3	FUEL GAS SYSTEM	110
18.4	FUEL OIL SYSTEM	112
18.5	STEAM CONDENSATE SYSTEM	114
19.0	IBR (INDIAN BOILER REGULATIONS)	120
20.0	PIPE ROUTING REQUIREMNT FOR DIFFERENT EQUIPMENTS	123
20.1	PUMPS	123
20.2	HEAT EXCHANGERS	128
20.3	COMPRESSORS	134
20.4	COLUMNS	138
20.5	STORAGE TANKS	151
21.0	PPPPU PUMP (PRESSURE POWERED PUMPING PACKAGE UNIT)	156
22.0	PIPE INCH METER INCH DIAMETER CONCEPT	160

-
- Address: Vitthal Plaza Building, beside Cafe D, Hanuman Temple Road, Laxmi Chowk, Hinjewadi Phase-1, Pin – 411057



FRONTLINE PROFESSIONAL ENGINEERS ACADEMY



Contact: +91 7058401762 / +91 7058738101

<https://industrialmanpowerservices.com>; pipingdesign@industrialmanpowerservices.com;
frontlineprofessionalpune@gmail.com

23.0	PMS (PIPING MATERIAL SPECIFICATIONS)	162
24.0	PIPING SUPPORT DESIGN	166

-
- Address: Vitthal Plaza Building, beside Cafe D, Hanuman Temple Road, Laxmi Chowk, Hinjewadi Phase-1, Pin – 411057