

**INDIRA TECHNICAL EDUCATION SOCIETY,  
NASHIK**

**DIPLOMA PIPING ENGINEERING SERVICES  
(DPES)**

<b>THEORY PAPER I :</b>	Theory syllabus for this Diploma Paper I is same as DIPLOMA MECHANICAL ENGINEERING SERVICES DMES – PAPER – I / FITTER Refer this syllabus booklet Page No. _____	100 Marks
<b>THEORY PAPER II :</b>	Theory syllabus for this Diploma Paper II is same as MECHANICAL DRAUGHTSMAN PAPER - II Refer this syllabus booklet Page No. _____	100 Marks
<b>THEORY PAPER III :</b>	Theory syllabus for this Diploma Paper III is same as PIPING DRAFTING & DESIGNING PAPER - I Refer this syllabus booklet Page No. _____	100 Marks
<b>THEORY PAPER IV :</b>	Drawing Paper syllabus for this Diploma Paper IV is same as PIPING DRAFTING & DESIGNING PAPER - II Refer this syllabus booklet Page No. _____	100 Marks
<b>THEORY PAPER V :</b>	Special Theory Paper of 2 Hours is Printed below.	50 Marks
	Sessional Drawing marks ( Internal )	50 Marks

**( Total : 500 Marks )**



# ( DPES - PAPER – V )

## THEORY SYLLABUS

### ELEMENTS OF PIPING ENGINEERING

( 50 marks )

1. **PIPING FABRICATION** : Workshop drawings, codes and standard, Piping fabrication, Welded joints in pipe lines, Welder's qualification, Preparation to be made by a welder, Welding processes used in piping fabrication (Gas Welding, Manual Arc Welding, Metal Arc inert gas Welding ) Tungsten arc, inert gas welding, Preparation of pipe edges, Welding electrodes, Heat treatment of weld joints, Radiographic test, Ultrasonic test, Dye penetrant test, Hydraulic pressure test.
2. **PLANT MAINTENANCE** : Objective of plant maintenance , Importance of plant maintenance , types of maintenance, Pert & CPM Techniques, Preparing equipment for maintenance, sampling and testing for entry, vessel entry, Welding and cutting, Principal objects or purpose of lubrication , types of lubrication.
3. **MAINTENANCE OF CENTRIFUGAL PUMPS** : Starting , locating, causes for faulty operation, belt drive, bearings, wearing rings, shaft sleeves, packing, mechanical seal, pump alignment.
4. **MAINTENANCE OF VALVE** : Gate valve, Non return valve / check valves, Ball valves, Diaphragm valve, butterfly valves.
5. **MAINTENANCE OF HEAT EXCHANGER** : Tube cleaning , attending to tube leak, tube sheet leak.
6. **MAINTENANCE OF RECIPROCATING AIR COMPRESSORS** : Location , Foundation, Air suction filter, lubrication , Piston rings, valves, packing, intercoolers, coolers after coolers.
7. **PIPING MAINTENANCE** : Corrosion , flanges, gaskets, leaks, pipe insulation, materials, pipe identification, relief devices , plastic piping , colour codes for pipe lines.

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