**“PIPE STATIC STRESS ANALYSIS”**

***KEY POINTS:***

The course starts with the fundamentals required to perform Pipe Stress Analysis. It also talks about the International code requirements, best industry practices and then ends with Practical application of Pipe Stress Analysis using “CEASAR II” software to build piping system models and to analyze the output.

The piping Engineer with knowledge of “Pipe Stress Analysis” can work in all core engineering industries (viz. Refineries, Oil and Gas, Petroleum sector). He/She will able to deliver independently in areas of Piping Design, Layout and Analysis.

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| ***ELIGIBILITY:*** | Fresh / Experienced - B.E. (Mech. / Prod. / Chemical), Diploma (Mech.) |
| ***COURSE DURATION:*** | 40 HRS |

***SYLLABUS***

1. **Theory:**
2. Introduction to Stress Analysis and Role of Stress Engineer.
3. Basic Stress concepts applicable in Stress Analysis.
4. Theories of Failure
5. Interpreting International Piping code equations, ASME B31.1, B31.3
6. Theory behind load case formation.
7. Support types and their application. Special supports like snubbers, struts, sway Braces
8. Manual Spring Selection and theory behind it
9. Pipe Span Calculation
10. Nomograph, Thumb Rules for flexibility
11. Criteria to identify stress critical lines and system Formation
12. Slug force, PSV Thrust force, Rupture Disk Calculations and load cases
13. Piping flexibility and Stress Intensification factor
14. Flange leakage analysis calculations
15. Expansion loop manual calculations
16. **Practical:**
17. Introduction to CAESAR II software and its Configuration file etc.
18. Colum to Pump Piping, PSV piping, Heat Exchanger Piping
19. WRC 107 / 297 Nozzle flexibilities
20. API610 calculations in CAESAR II
21. Practical on occasional forces like slug, PSV pop up.
22. Modelling of Special Equipment piping like Turbine, AirFin Coolers : Overview
23. Expansion Joints (Bellow)
24. Spring selection using CAESAR II.