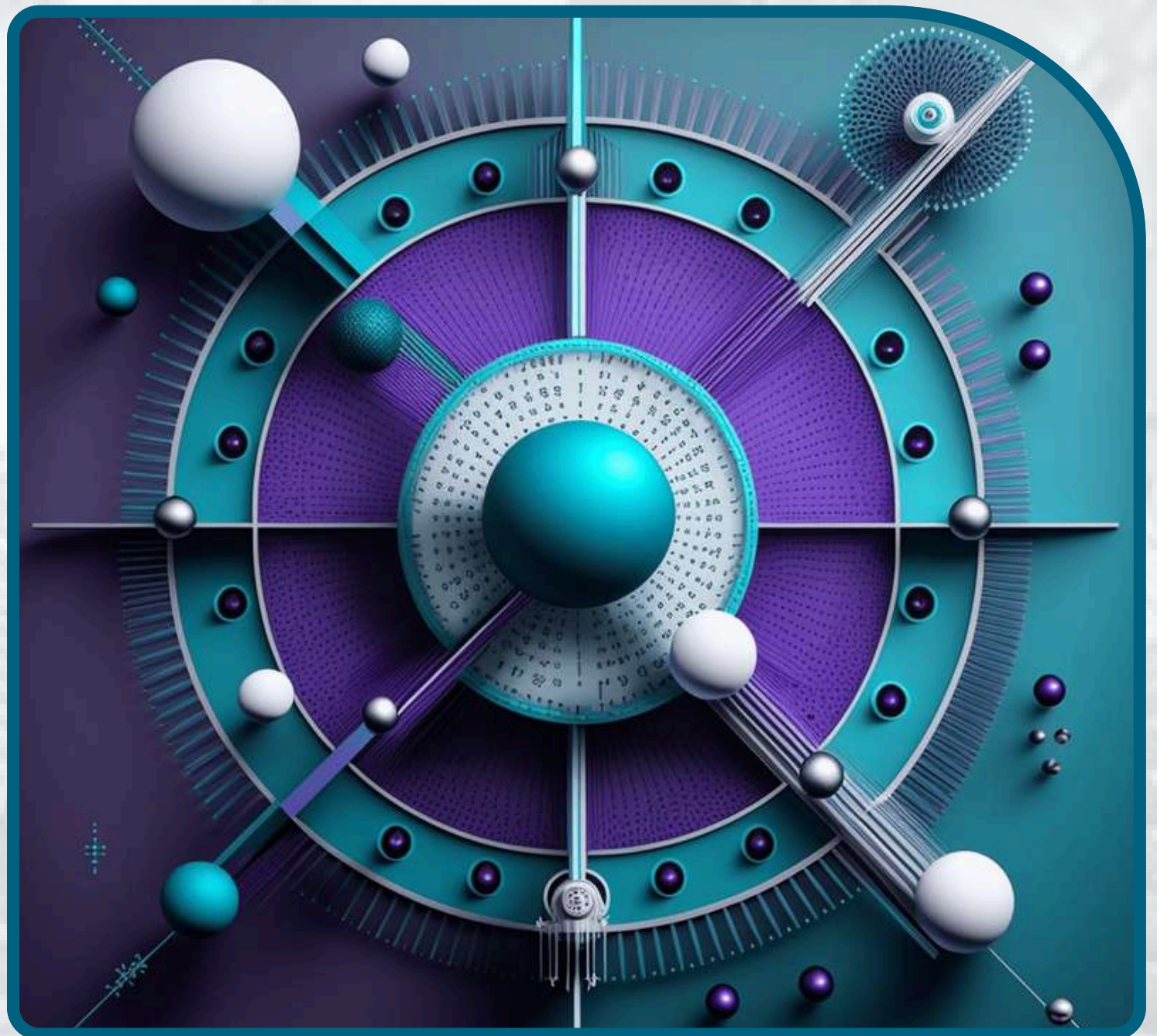


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GD&T

Lecture No	Topics CLICK ON TOPICS FOR DETAILS
1	Quick Recap Basics of GD&T (Only around 1 hour)
2	Form Tolerances
3	Datums
4	Orientation Tolerances
5	Location Tolerances
6	Gauges to verify Geometrical tolerances
7	Common mistakes to avoid when using GD&T on drawings
8	Case Studies & Review of “Your Company” drawings



Geometric Dimensioning & Tolerancing

1

Quick Recap Basics of GD&T (Only around 1 hour)

- Revision of GD&T fundamentals, rules
- Feature of size and non-size features
- Virtual condition
- 14 GD&T Symbols
- Applications of Material Condition Modifier
- Basic Datums

16 Fundamental Rules of Dimensioning & Tolerancing Virtual Condition & Resultant Condition Boundary Tolerances Zone Shapes

2

Form Tolerances

- Straightness tolerances for line elements
- Straightness tolerances for cylindrical feature
- Straightness tolerance with MMC modifier
- Flatness tolerance for single planar feature
- Flatness tolerance with MMC modifier
- Tangent modifier
- Circularity Tolerance
- Cylindricity Tolerance
- Inspection methods to verify form tolerances



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Geometric Dimensioning & Tolerancing

3

Datums

- 4 criterion to select datums
- 3-2-1 Principle
- Datum center plane
- Partial Datum
- Coaxial and Co-planar datums
- Inclined Datum Features
- New datum features: Conical, Linear extruded shape,
- Complex Shape
- Identification of coordinate system location correctly
- Datum feature simulators
- Datum Targets: Points, Line, Area
- Fixture designs using datum targets
- Customized datum reference frame
- Temporary Datums
- Datum with translation modifier
- Datum shift (Datum feature shift)
- MMB calculations with 1 datum / 2 datums / 3 datums
- Cartoon gage sketch to verify datum shift
- Proper Sequence in applying GD&T

4

Orientation Tolerances

- How to apply?
- Perpendicularity tolerances with multiple datums
- Perpendicularity tolerances applied to feature of size
- Parallelism tolerances applied to feature of size
- Angularity tolerances applied to a feature of size
- Applied to a cylindrical or width type feature
- How to make 3D orientation tolerances to 2D
- Orientation tolerances in multiple segment (combined) feature control frame
- Inspection methods to verify orientation tolerances



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A) Position Tolerance

- Position – LMC Basis
- Position –Boundary (for slots)
- Zero Tolerance at MMC
- Projected Tolerance Zone
- Position with no datums to establish primary datum axis from multiple features
- Simultaneous Vs Separate requirements
- Bi-Directional Tolerancing for pattern of features
- Composite Position tolerance:
 - 1) Pattern-locating Tolerance Zone Framework (PLTZF)
 - 2) Feature-relating Tolerance Zone Framework (FRTZF)
 - 3) Composite tolerance with no datum / 1datum / 2datums / 3datums
 - 4) 2-tier composite tolerance
 - 5) 3-tier composite tolerance
 - 6) 4-tier composite tolerance
 - 7) Composite tolerance for Linear Coaxial Feature Alignment
- Rules of composite tolerances
- Combined position tolerances
- Use position to control co-axial features
- Datums for Position Control
- Inspection methods to verify position tolerances

B) Runout Tolerances

- Circular Runout Tolerance for sphere
- Circular Run out Tolerance for cone
- Circular Run out Tolerance for curve
- Total Run out for flat surfaces
- Total runout applied on partial length
- Total Run out Tolerance with two datums



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5 Location Tolerances

C) Profile Tolerances

- Profile of a plane or tapered surface
- Multi-segment or combined profile tolerance
- Composite tolerances:
 - 1) Composite tolerance with no datum / 1datum / 2datums / 3datums
 - 2) 2-tier composite tolerance
 - 3) 3-tier composite tolerance
- Profile on a Unit Basis
- Use of profile from flushness and gap analysis point view
- How to control co-planarity using profile tolerance
- Restraint notes on non-rigid parts - specification & interpretation
- Datums for Profile Controls
- Inspection methods to verify Profile tolerances

D) Concentricity & Symmetry Tolerances

- Concentricity Tolerance
- How to use position tolerance instead of concentricity
- How to use runout tolerance instead of concentricity
- Symmetry Tolerance
- How to use position tolerance instead of symmetry

6 Gauges to verify Geometrical tolerances

Functional / Fixed Gauges:

- 1) Go-Gauges / No Go-Gauges
- 2) Attribute / Fixed gauges
- 3) Gauge size calculations and gauge-makers tolerances
- 4) Gauge design exercises
 - **Variable Gauges**
 - **Various geometrical tolerance inspection tools**
 - **Hand calculation for position tolerance using Pythagoras theorem**



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Geometric Dimensioning & Tolerancing

7

Common mistakes to avoid when using GD&T on drawings:

- Incorrect datum usage
- Incorrect geometrical control
- Incorrect modifier usage
- Incorrect calculation of virtual condition

8

Case Studies & Review of “Your Company” drawings

- Case studies in general and specific to your company / products
- Review existing **Your Company** drawings
- Discussion on the correct and incorrect use of GD&T on your existing drawings
- GD&T best practices for inspection & manufacturing



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About Us



Why Choose Us

With vast domain experience, highly capable & equipped Engineering Team we are specialized in providing the most professional Engineering services with fast turn around time. We also help businesses meet their goals with our cutting edge Engineering & Training services.



Mission

Our mission is to deliver world-class engineering solutions with simplicity, precision, and speed, while empowering professionals through comprehensive training that meets global industry standards.



Vision

To create a future where our cutting-edge expertise in engineering solutions and professional training empowers both clients and the industry, making us an indispensable partner in their success.



Our Core Values

1) INNOVATION

We consistently challenge the status quo by exploring new ideas & technologies to deliver creative, cutting-edge solutions.

2) INTEGRITY

We operate with unwavering honesty & transparency, building lasting trust with every client and partner.

3) CUSTOMER FOCUS

We are committed to understanding our clients' unique challenges & providing tailored, value-driven solutions.

4) ETHICS

We collaborate & support one another, believing our collective strength drives the best results for our clients.



Design Services

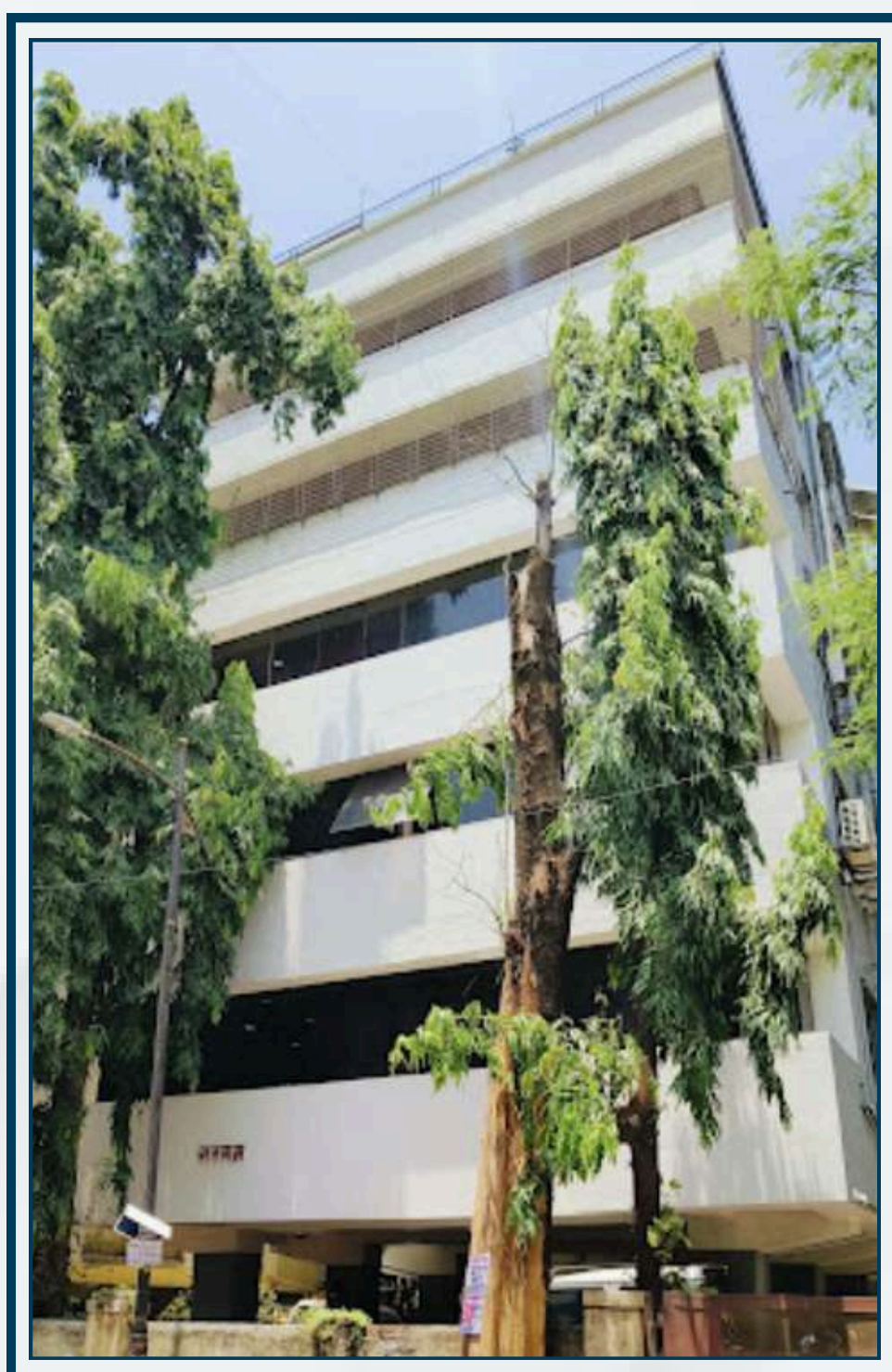


About Us

With vast experience in Static Equipment Engineering, we offer the best, cost-efficient solutions to our customers. Our Engineering team is capable to deliver Design of Pressure Vessel, Heat Exchanger, Condenser, Reactor, Column, Storage Tank, and other static equipment, as per various national and international codes and standards.

The team is well experienced and trained to deliver Design as per ASME Sec VIII Div-1, Div-2, PED, ADMerk Blatter, PD5500, AS1210, GOST, TEMA, API 660, API 650, API 620, IBR, EN13445, etc.

We have successfully completed many ASME U-stamp audits and worked on hundreds of U-stamp vessels closely with many certifying agencies.



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Training Services



About Us

Our training program offers a unique and professional platform for engineers to master their skills to meet the demanding requirements of industries. As an Authorized Training Provider for ASME, we stand firmly behind our mission: **“No one can decode the code like us.”** This expertise is rooted in our deep understanding of various national and international standards, delivered by **seasoned industry veterans** who are currently active in their fields to bridge the gap between theory and real-world application.

Drawing on extensive multi-disciplinary expertise, we provide **comprehensive** courses tailored to the rigorous demands of today's market. In a remarkably short time, our **commitment to excellence** has established us as the most trusted and preferred training partner for leading corporations and ambitious individuals globally.



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Corporate Training



Onsite Corporate Trainings

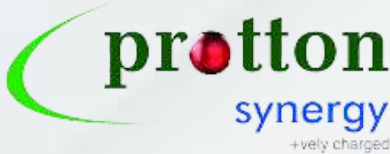
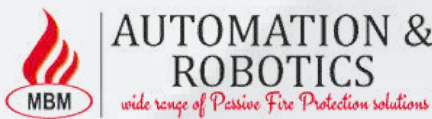
We have been instrumental in developing the workforce for organizations through our onsite training under our corporate training program. These training has helped the corporates to develop the skills and knowledge of their resources and as a result increase the output with better and optimized design of equipment.



Our Customers

Our Corporate Customers

We have been instrumental in developing the workforce for organizations through our onsite training under our corporate training program. These training has helped the corporates to develop the skills & knowledge of their resources & as a result increase the output with better & optimized design of equipment.



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Our Track Record

How We Have Been Doing..!

- 

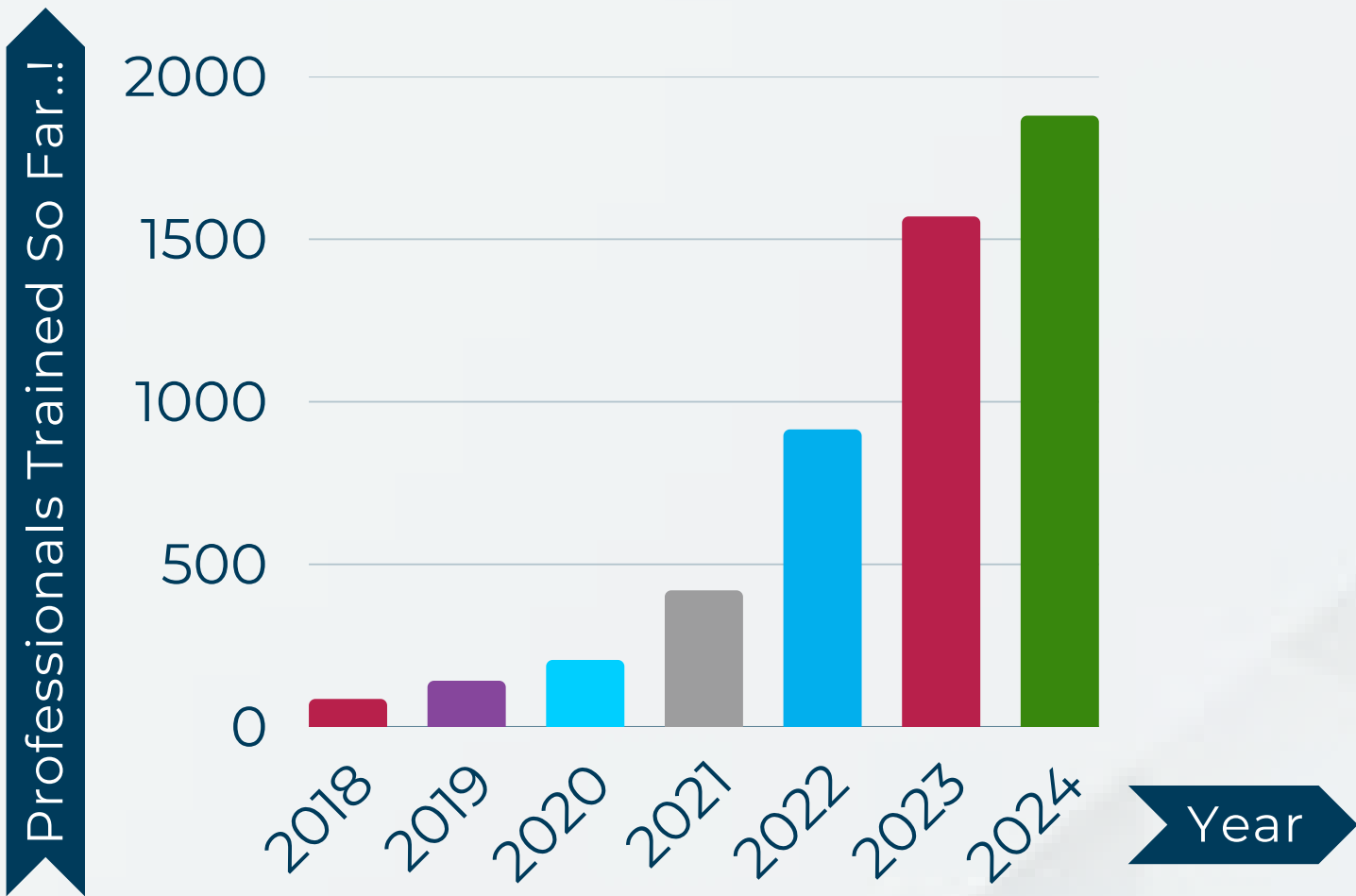
100+ Corporate Customers
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4000+ Satisfied Trained Individual
Online & Offline Combined
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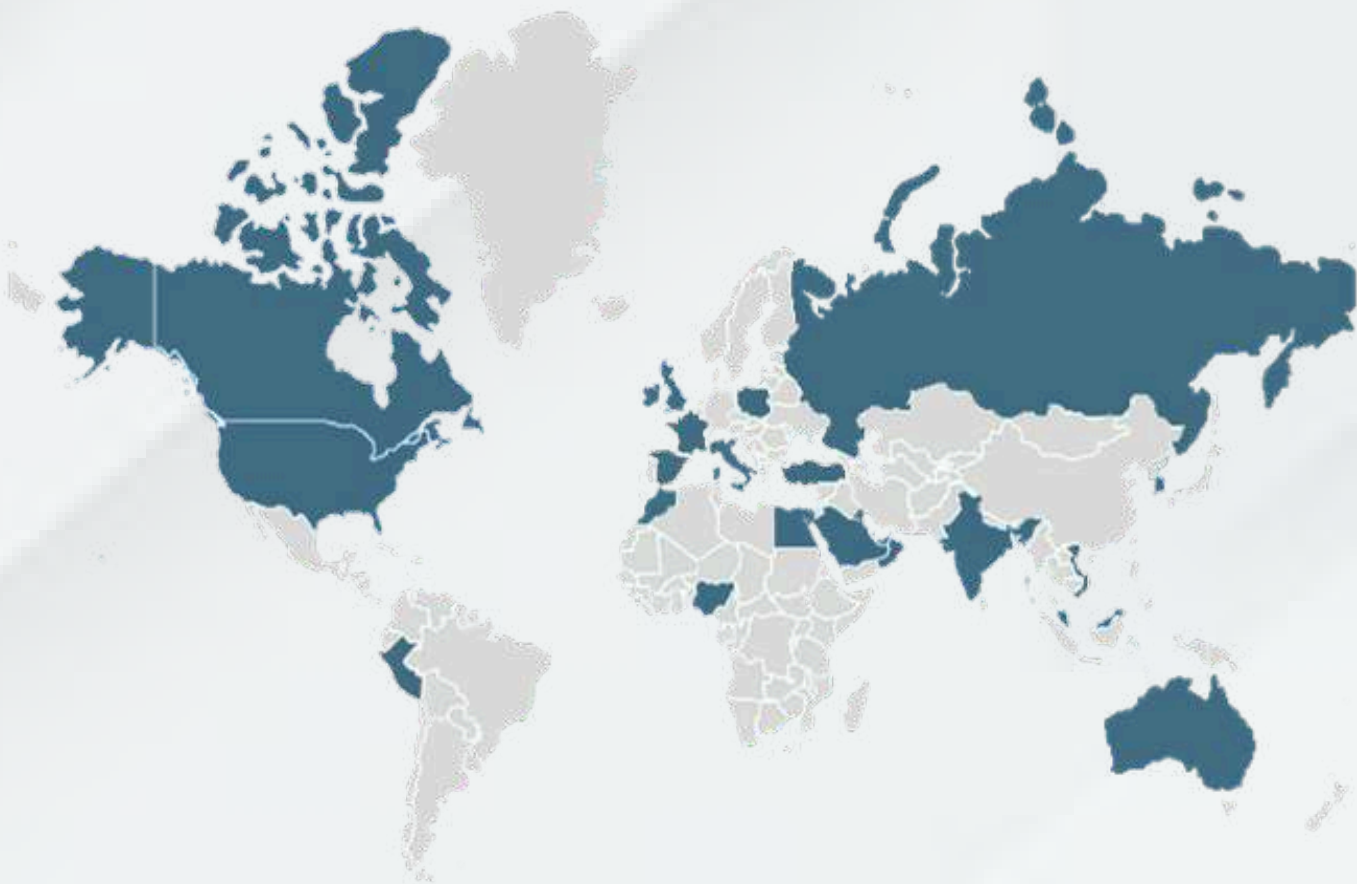
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Across The Globe
- 

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Engineers Trained

Over The Year...!



Beneficiaries Across The Globe



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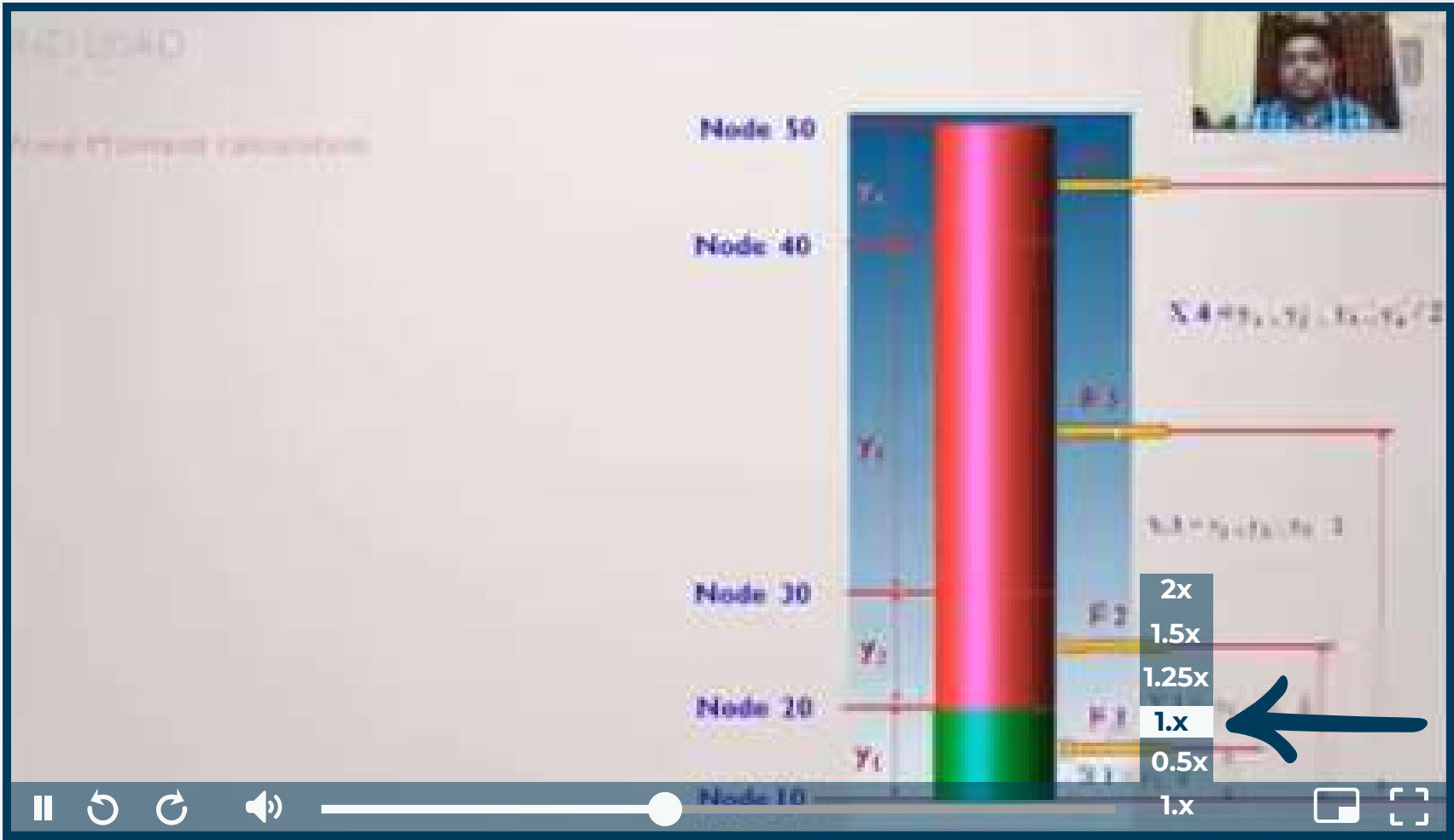
use organization code **yatgi**



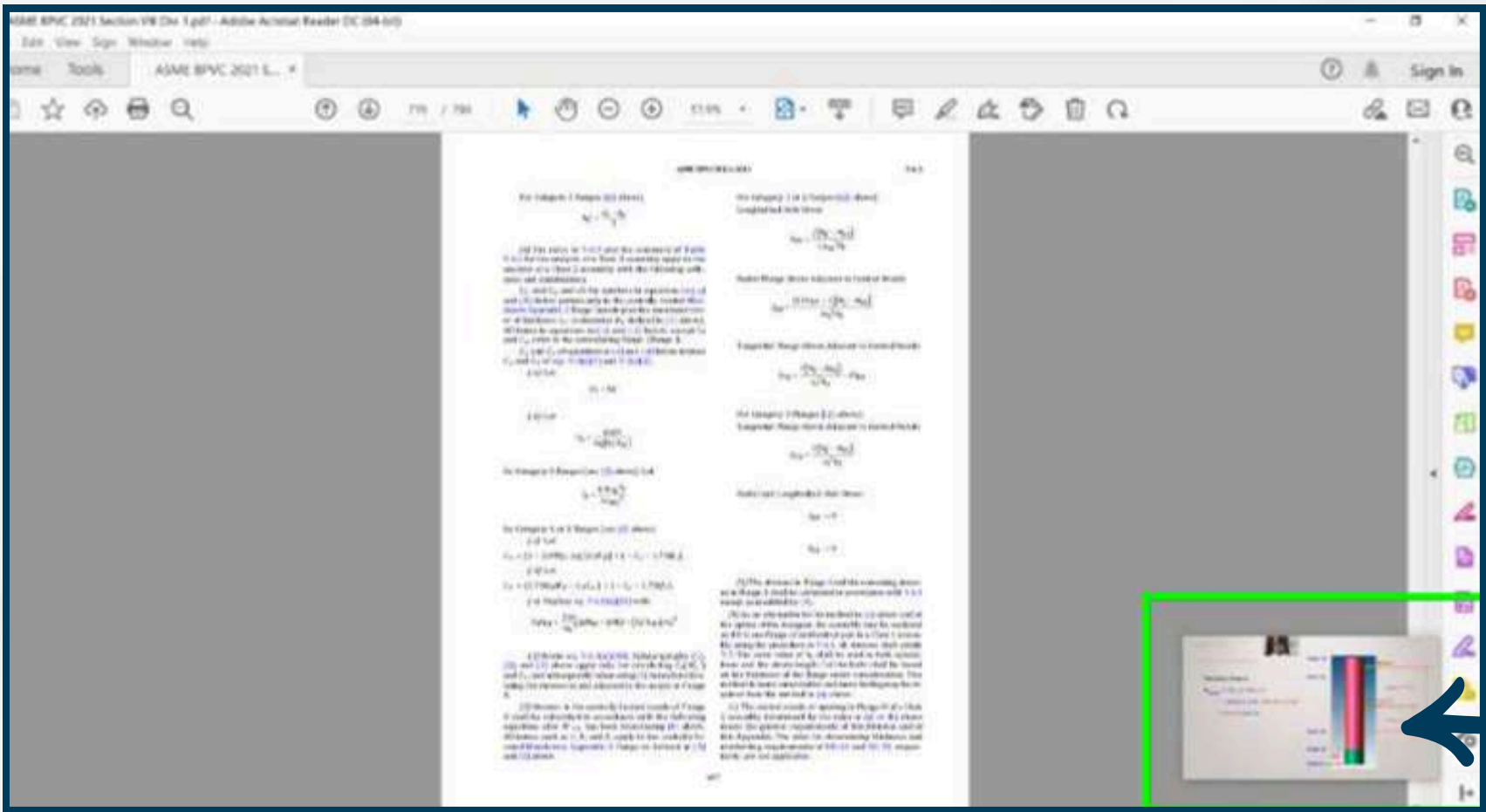
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Advantages Over Offline Courses

Benefits Of Online Training

Offline

Online

No more compromise on work or personal schedule

Getting late for the class. **Need to rush** or I'll miss the lecture.



I can **save travelling time** and **avoid stress** by watching lectures online **as per my convenience**.



Get answers on the go...!

I am stuck in the Project. But this topic is scheduled after 4 weeks in the live class. **How can I solve it now?**



I was stuck..! But I **just watched this topic online** and bingo..! **the problem is solved**. I simply love this platform.



Live Q&A session every week

The Classes are over. **Whom can I ask** the questions now?



My Course **validity is 18 months**. Also the **live Q&A session is twice a week**. I can get all the answers.



Advantages Over Offline Courses



Benefits Of Online Training

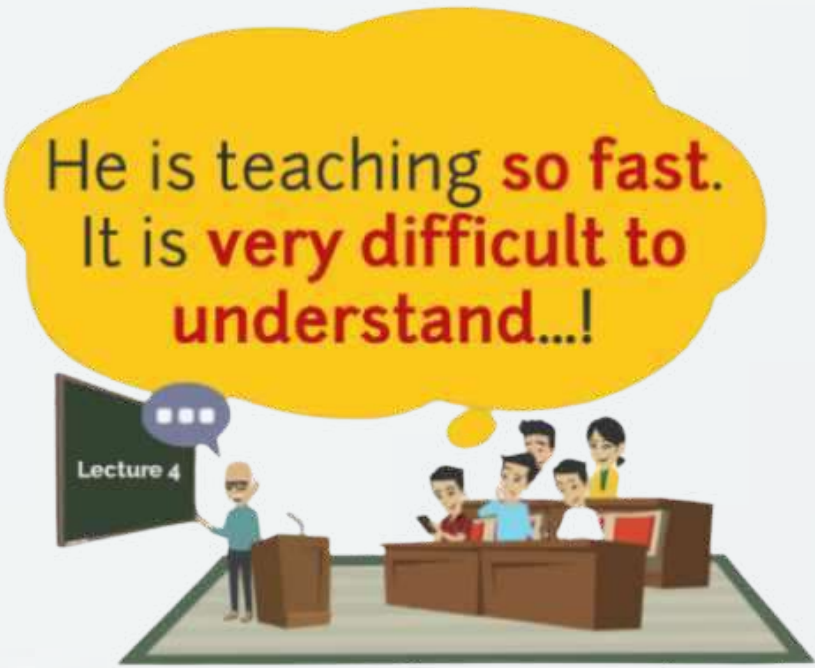
Offline

Online

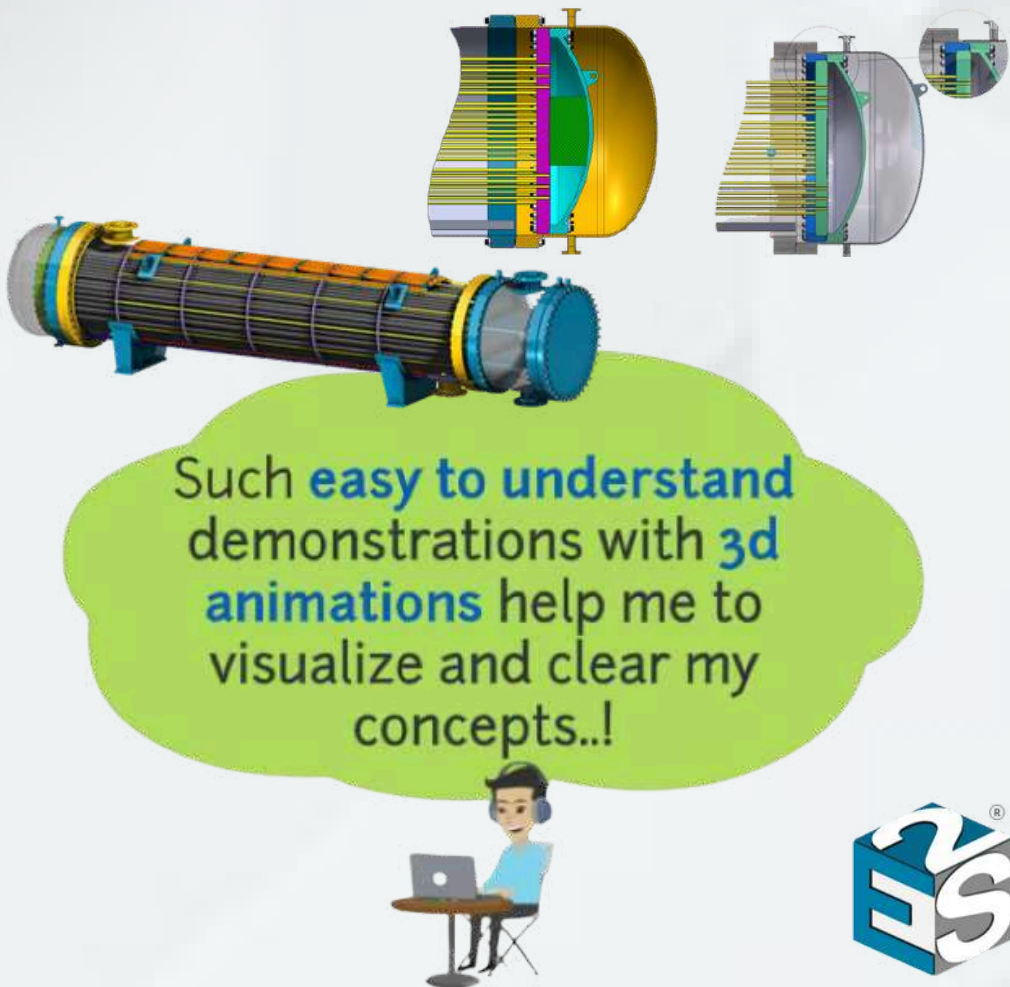
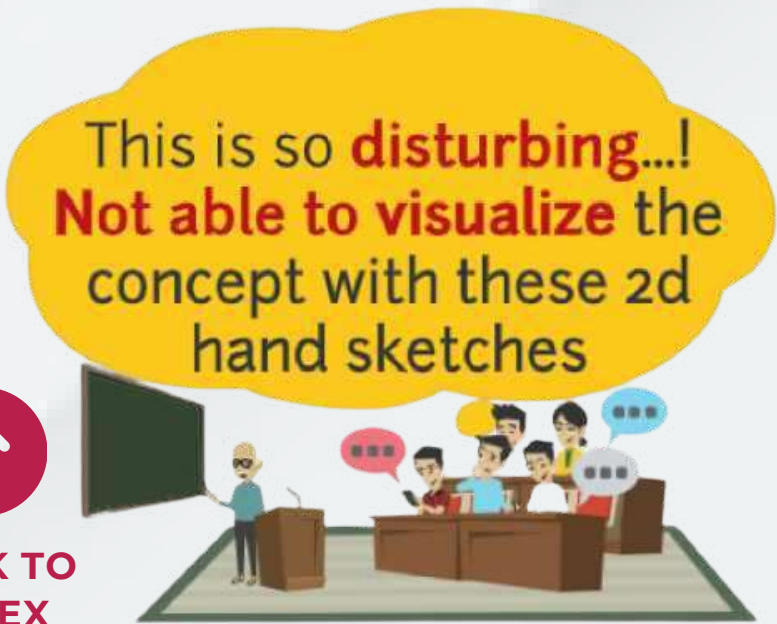
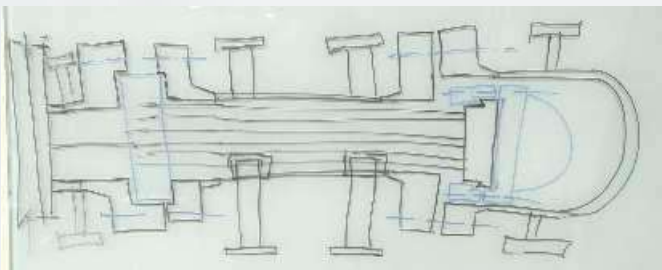
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Learn At Your Own Pace



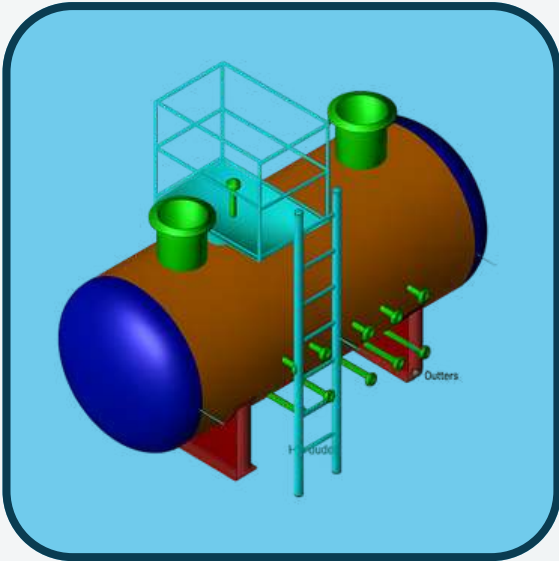
No Disturbances | Video Lectures | Animations



Our Other Courses



Static Equipment Design



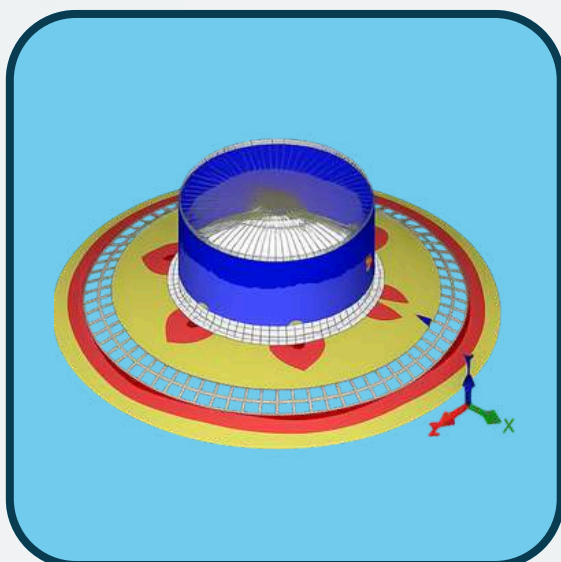
**PRESSURE VESSEL
DESIGN (DIV 1)**



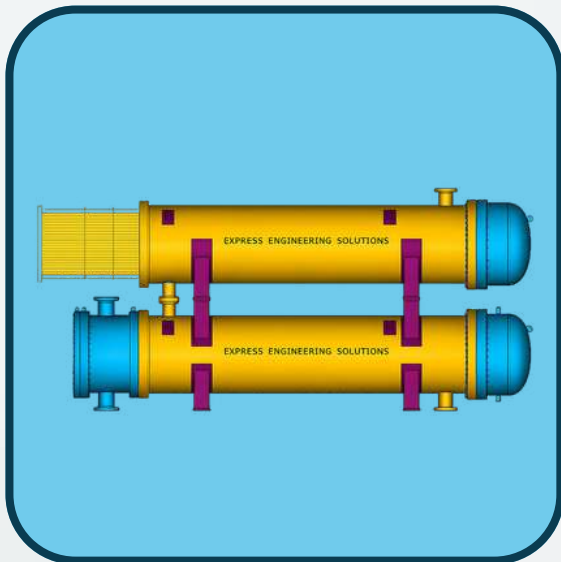
**PRESSURE VESSEL
DESIGN (DIV 2)**



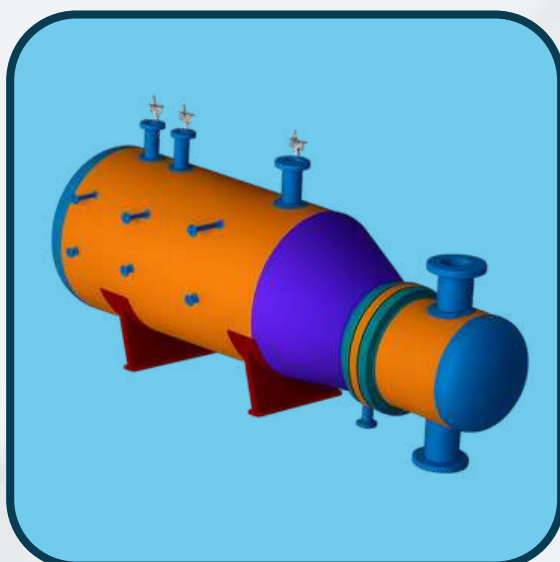
PREMIUM COMBO



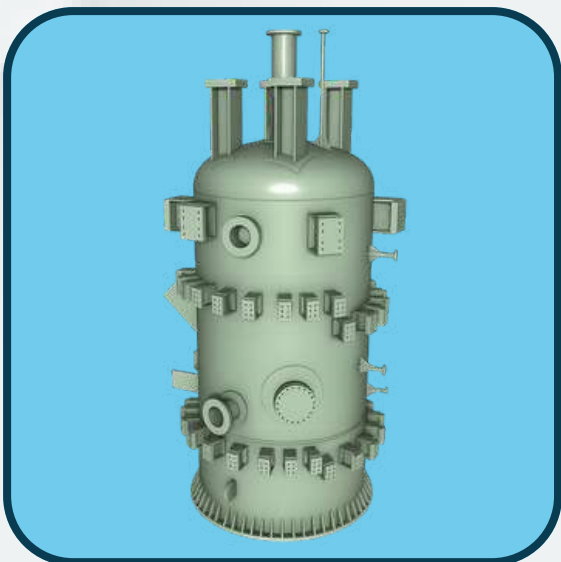
NOZZLE PRO FEA



**HEAT EXCHANGER
DESIGN**



**PV ELITE
SOFTWARE**



**DIV 1 & DIV 2
COMBO**



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Our Other Courses



ASME Authorized Course



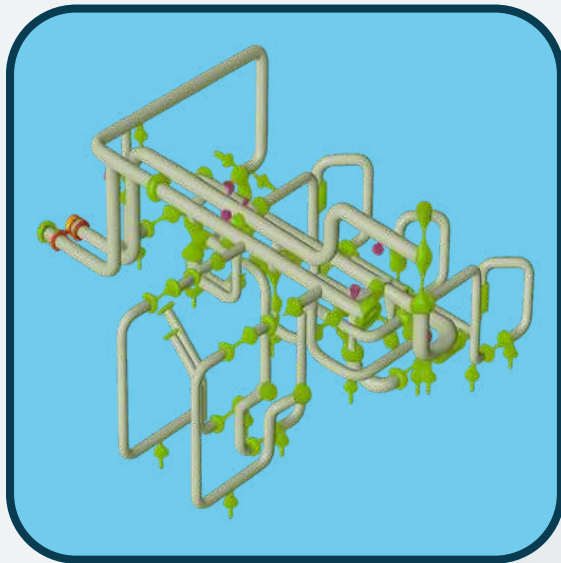
ASME PD442 



Pipe Stress Analysis



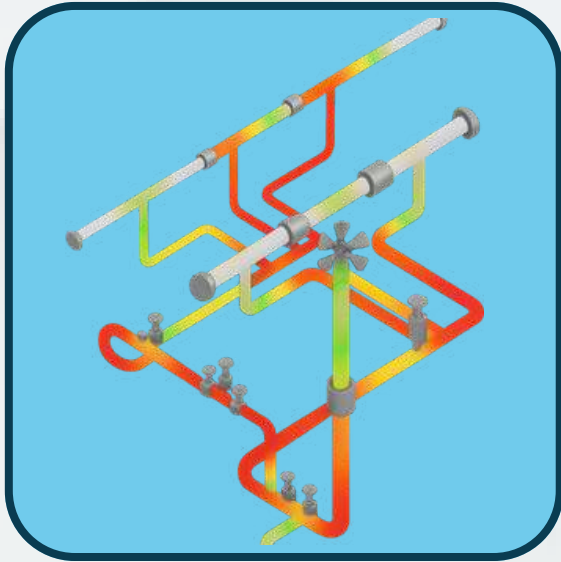
BASIC PIPE STRESS ANALYSIS 



ADVANCE PIPE STRESS ANALYSIS 



BURIED PIPELINE STRESS ANALYSIS 



COMBO PIPING & PIPELINE STRESS ANALYSIS 



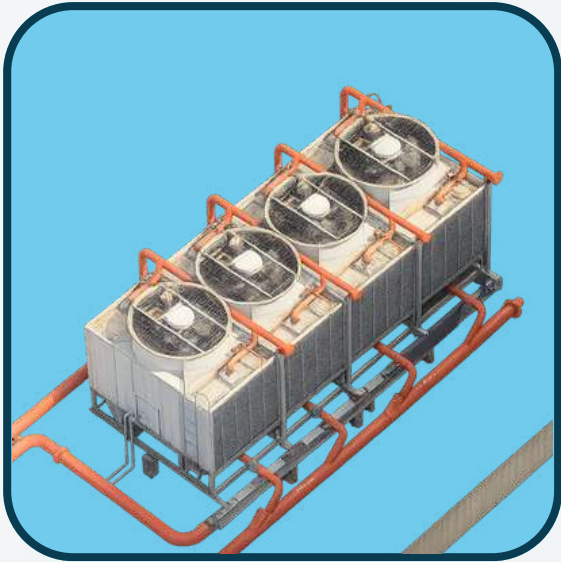
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Our Other Courses



Thermal Design



**AIR-COOLED
HEAT EXCHANGER
(ACHE)** 



**SHELL & TUBE
HEAT EXCHANGER
(STHE)** 



**THERMAL DESIGN
COMBO
(STHE & ACHE)** 



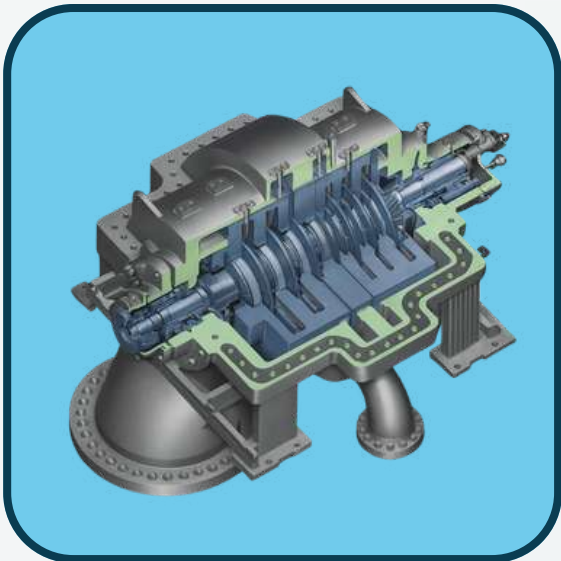
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Our Other Courses



Rotary Equipment Design



**CENTRIFUGAL
COMPRESSOR**



**CENTRIFUGAL PUMPS
IN OIL & GAS
INDUSTRY**



**ROTARY EQUIPMENT DESIGN
COMBO**



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