

FACT SHEET

Design of Supports for Piping Systems



Design of piping systems for industrial processes: Pressure loss, Piping components, Arrangement, Thickness calculation, Stress fundamentals and support selection.

Who Should Attend?

This course is intended for **graduates (or soon to be), designers, freelancers, technicians and engineers** involved in: calculation, design, selection, manufacturing, safety, quality and maintenance of systems and equipment in industrial processes.

Previous knowledge of this subject is not required to attend to the course.

Training Objectives

The main objective of this course is to **transfer to participants the theoretical and practical skills required in projects**, obtained from experience and sound engineering practices.

What to Expect?

Get familiar with the different types of supports, purpose, classification and symbology.

Learn to read a stress and flexibility isometric, and transform the restraints proposed by the stress analyst into real supports.

Learn to design rigid supports and to select spring supports, based on real examples.

Benefit from Lessons Learned and Best Practices from different international projects

Course Duration

Full Course: 60 hs; to be completed in 45 days. The Virtual Campus will be open for 180 days (flexibility).

Methodology

At your own pace

Available 24/7, Self-paced course

“Learn by doing” concept

Non-scheduled sessions

Included in the course

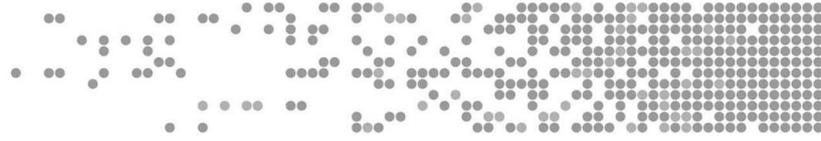
Study Notes

Summary Videos

Conceptual Questions

Case Studies based in real designs

Design & calculation sheets



Lesson 1: Purpose & classification | 5h

Supports design

Information gathering

Purpose of piping supports

Supports classification

As per the attachment to piping

As per the construction method

Exercises & Case Studies

- *Assimilation test*

Lesson 2: Stress analysis & restraints | 10h

Stress analysis

Thermal expansion of piping

Design loads

Piping systems restraints

Symbology, types of restraints

Stress isometric

Exercises & Case Studies

- *Assimilation test*
- *Suggested Case Study No. 1: Symbology*
- *Suggested Case Study No. 2: Symbology*
- *Proposed Case Study No. 3: Symbology*

Lesson 3: Rigid supports | 15h

Types of rigid supports

Rest supports, guide

Stops, anchors

Hangers, Trunnions and pedestals

Materials of supports

Supports standard

Exercises & Case Studies

- *Assimilation test*
- *Proposed Case Study No. 1: Commercial media*
- *Proposed Case No. 2: Standard of supports*

Lesson 4: Spring supports | 15h

Variable loads spring

Purpose and characteristics

Selection procedure

Constant loads spring

Purpose and characteristics

Selection procedure

Exercises & Case Studies

- *Assimilation test*
- *Proposed Case No. 1: Variable load springs*
- *Proposed Case No. 2: Variable load springs*
- *Proposed Case No. 3: Constant Load Piers*
- *Proposed Case No. 4: Constant load springs*

Lesson 5: Location & calculation | 10h

Location of supports

Location in the piping system

Maximum span between supports

Structural calculation

Stresses, deformations

Calculation tools, examples

Exercises & Case Studies

- *Assimilation test*
- *Proposed Case No. 1: Support spacing*
- *Proposed Case No. 2: Structural supports*

Lesson 6: Special supports | 5h

Types of special supports

Rigid strut, Snubber

Sway brace

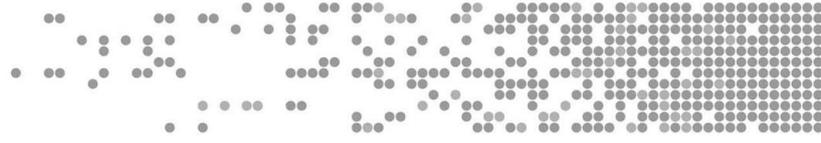
Supports for vibrating systems

Supports for structures and equipment

Supports for cryogenic systems

Exercises & Case Studies

- *Assimilation test*



Instructor

Senior Mechanical Engineer and Master in Business Administration (MBA). **More than 20 years of experience in design, calculation and fabrication of pressure vessels, heat exchangers, storage tanks, piping systems and structures in general.**

Duties of the above-mentioned positions cover the entire cycle of an equipment, **from the very conception, drawings, design and calculation, technical specifications, technical requisitions, vendor drawings, to the manufacturing phase and installation assistance.** Among the developed projects, clients such as SHELL, EXXON, REPSOL, CHEVRON, GALP, CEPESA, TUPRAS and SAUDI ARAMCO can be found.

Vast experience providing specific training sessions in both classroom and online approaches. More than 75 training courses carried out in different institutions and in-company, courses oriented to graduates, designers, engineers and experienced professionals.

Tailored Training

The most effective training is one that satisfies the needs of each company's business focus and deliverables. **We adapt our training programs to each specific requirement, offering bespoke solutions for each need.** The result, 100% tailored programs, developed to maximize the time investment and deliver tangible and intangible returns to the work teams.

After assessment phase, a tailored training plan is designed jointly with the client. This plan is specifically tailored to meet the client's needs, focusing on effectively enhancing the capabilities of the work team. **We provide practical, dynamic and hands-on training,** making available the best instructors in each subject.

Arveng Training

Arveng Training has developed effective and practical courses for the needs of today's industrial challenges by delivering specific and high-quality engineering training courses utilizing all three approaches: classroom, on-line and tailored training. We are proud to have imparted more than 250 classroom courses, 1200 online courses and over 65 in-company sessions. Our training activities has benefited over 4.500 professionals. Our greatest pride is in the letters of recommendation we receive from so many of our customers in this area.

We consider the time of our students as the most valuable. For this reason, all our courses have been designed with the main objective of quickly the professional skills of the participants, through our expert instructors in different disciplines. **We stimulate creativity, innovation and initiative to make the participants inquisitive to bring good engineering practices and lessons learned to the field that benefits their employers in the long term.**

Our Company

Arveng Training & Engineering SL is a leading company providing Training and Engineering services based in Madrid, Spain. Our mission and vision are to be a leading training and engineering services company. We are a team of highly motivated, talented high qualified professionals with more than 20 years of experience. Our main goal is to provide our clients, the best training and engineering services and to exceed their expectations in all their spheres of industrial activity, through our renowned services which are based on efficient, innovative, cost-effective and transparent principles.

Established in July 2010, mainly oriented to the industrial sector, from the very beginning Arveng has always worked with closeness, responsibility and commitment in the different areas of activity.