FACT SHEET (LIVE COURSE)

Hydraulic Calculations in Engineering

Fundamentals, Piping Characterization, Single-Phase Flow, Two-Phase Flow, In-line Instrumentation, Fluid Transport Equipment, Hydraulics in Static Equipment, Advanced Hydraulics

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.

Methodology

Instructor-led training course in adult learning format with discussions, individual exercises and simplified case studies, providing practical knowledge to implement in the field.

Duration

The duration of this training course is **24 hours**, divided into several sessions to facilitate the learning process.

What to expect?

Acquire the vocabulary and fundamentals.

Understand main principles of Fluid Mechanics.

Know best design practices.

Learn how to design pipe lines by means of pressure drop calculations.

Design fluid transport equipment.

Identify instruments used for measure and control of flow.

Learn hydraulics fundamentals applied to diverse engineering designs.

Contents

Fundamentals

Historical data.

Practical applications

Fluid properties

Calculation software

Piping characterization

Identification of lines in P&IDs

Materials and mechanical design

Piping fittings

Distribution networks

Single-phase flow

Fluid flow. Design basis

Liquid flow. Gas flow. Friction factor

Pressure drop in fittings

No Newtonian fluids. Non-circular conducts

Two-phase flow

Gas-liquid flow

Slurries transport (liquid-solid)

Pneumatic transport (gas-solid)

In-line instrumentation

Flow measurement.

Restriction orifices.

Control valves

Fluid transport equipment

Pumps.

Compressors.

Fans and blowers.

Turbines.

Ejectors.

Hydraulics in static equipment

Nozzles.

Drain and depressurization.

Fluid distribution.

Fixed and fluidized beds.

Fluid mixing.

Advanced hydraulics

Water hammer.

Reboilers.

Top of column systems.

Lines connected to safety valves.

Case studies in the classroom:

Utility distribution network design

Pressure drop in fittings

Calculations for centrifugal pump design

Tank draining

Instructor

Senior Process Engineer. Wide and varied professional experience, mainly in multidisciplinary projects in Engineering for Oil & Gas and Petrochemical sectors, carrying out process engineering duties. Previous background on field, working for Urban Wastewater Treatment Plant and Pulp companies.

Experience **developing EPC projects internationally, by executing tasks such as design, calculations, validation, optimization, client liaison, coordination and supervision of less experienced engineers**; all of it oriented and committed to comply with schedule, quality, cost, scope and planning of project requirements.

Knowledge of international standards and familiar with technical specifications from international clients (REPSOL, ESPINDESA, TUPRAS, DOW, SAUDI ARAMCO, NEFTEGAZINDUSTRIYA, SABIC, NIS-GAZPROM, CEPSA).

Experience providing engineering training courses to experienced professionals, both online and in classroom, for different institutions.

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 an assessment phase, a tailored training plan is de-signed 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 100 classroom courses, 200 online courses and over 15 in-company sessions. Our training activities has benefited over 1,500 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.