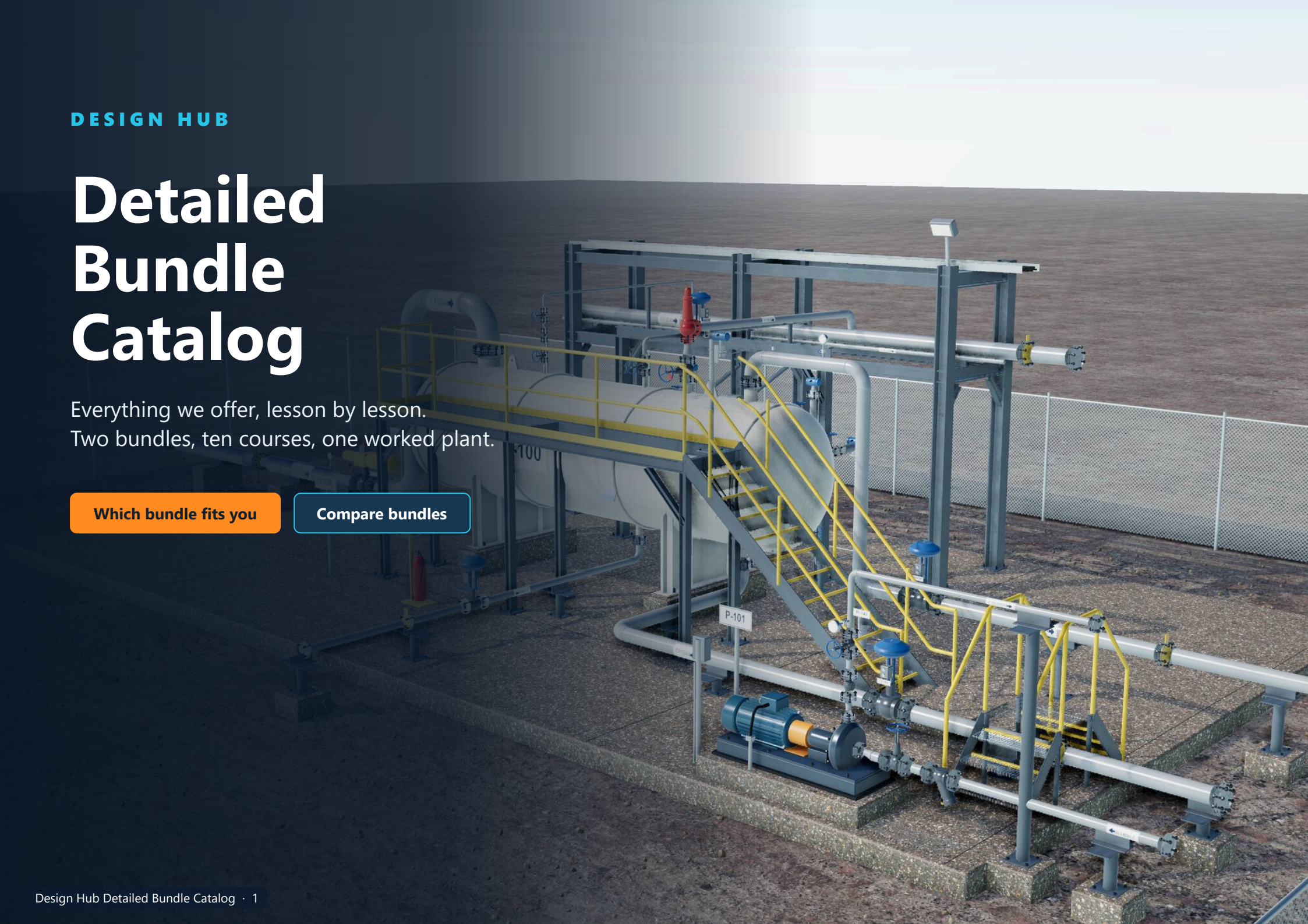
DESIGN HUB

Detailed Bundle Catalog

Everything we offer, lesson by lesson.
Two bundles, ten courses, one worked plant.

Which bundle fits you **Compare bundles**





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Prices and lesson counts checked against the live site on 22 November 2026. Pictures show the Design Hub teaching plant in 3-D.



WHAT WE OFFER

One plant, taught from every discipline

Design Hub teaches oil and gas design on one worked example: the Design Hub Plant. Instead of a new toy problem in every course, you follow the same separator, valves, lines and instruments from one subject to the next.

One worked plant

10 MMSCFD gas, 2,000 bbl/d oil and 1,500 bbl/d water through three-phase separator V-100 at 12 barg and 60 °C.

Video lessons

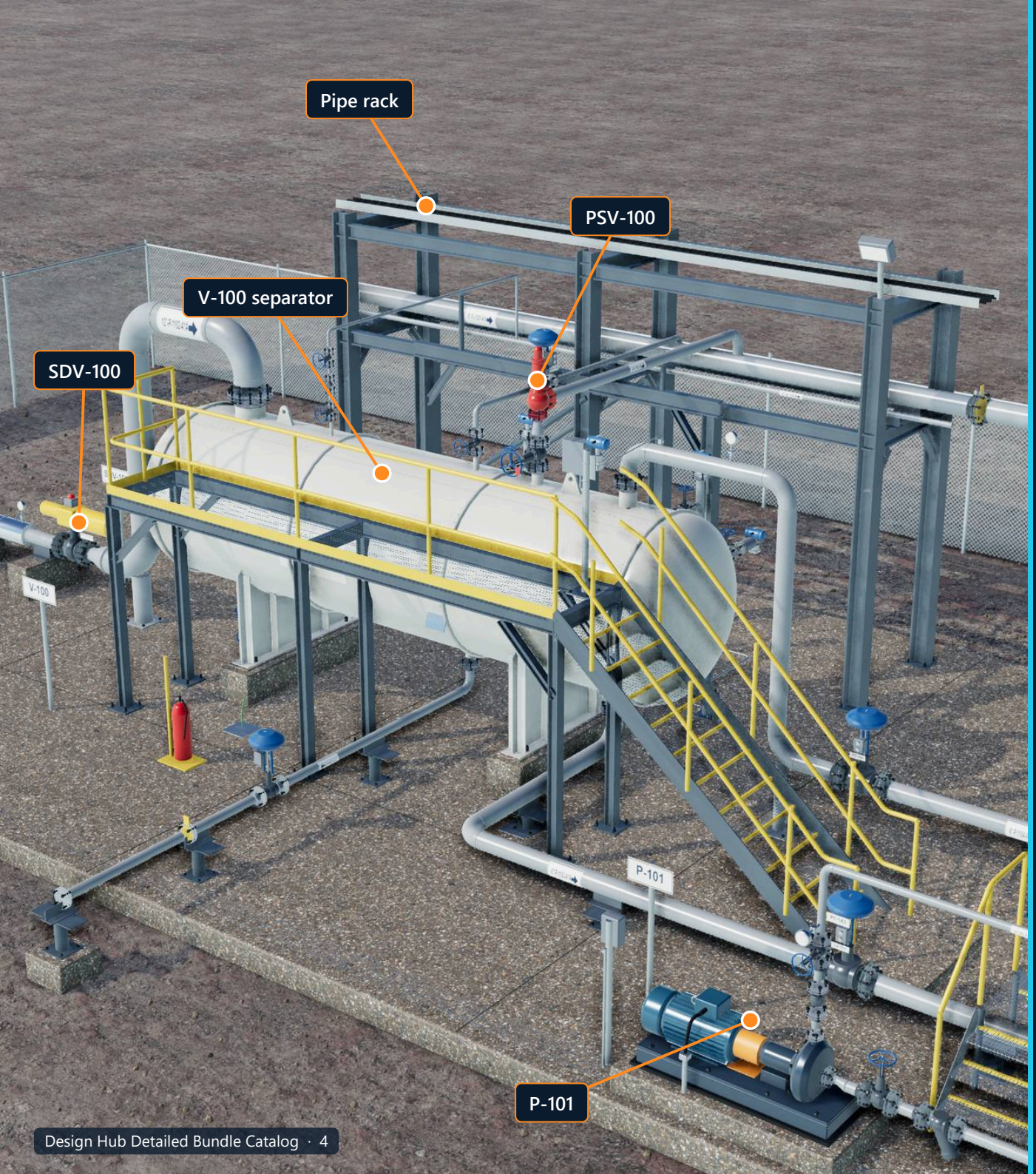
Short, focused lessons you watch on the website, in order or by topic.

Calculations shown

Design courses work the numbers on screen and name the code clause or standard. Foundations is the exception: it is an orientation course.

Free previews

Paid courses have free lessons you can watch before buying. Instrumentation is free to enrol.



THE PLANT

The plant behind every course

These are real items in our 3-D teaching plant. Each course goes deep on one part of it.

Where each course lives

- **V-100:** Process Design, Pressure Vessel, CFD
- **PSV-100:** PSV
- **SDV-100 and tags:** P&ID, Instrumentation
- **Lines and rack:** Line Sizing, Piping in 3D
- **Whole plant model:** HYSYS

P-101 sizing is a coming Process Design lesson (Lesson 8). It is not live yet.

V-100: 1.8 m ID x 6.0 m T/T, design 15 barg. PSV-100: 3L4 orifice, set 15.0 barg.



WHAT YOU RECEIVE

What a buyer actually gets

Included

- Video lessons on the website for each course you buy
- A one-time price, not a subscription
- The lessons live today, listed in this catalog line by line
- Lessons added to a course later, where the course page says so

Not included today

- Software licences (HYSYS, CFD or CAD)
- Your own copy of any code or standard
- Quizzes or a final test
- Downloadable calc sheets or templates

Stated plainly

Some courses are still being built. Each course section shows every lesson as **Free preview**, **Live** or **Coming**. Coming lessons have no promised date, so please buy for what is live today.



HOW ACCESS WORKS

From first look to first lesson

1. **Watch the free lessons.** Open any course page and play its free previews.
2. **Choose a course or bundle.** Use the comparison and role guide in this catalog.
3. **Pay.** Outside India, pay by card on the website in USD. In India, ask on WhatsApp for a UPI link at the rupee price.
4. **Watch on the website.** Sign in to your Design Hub account to open your lessons.
5. **Come back for new lessons.** As lessons are released they appear in the course.

The P&ID course page states lifetime access on phone or laptop. Lifetime access is also stated on the HYSYS, Foundations, Line Sizing, PSV, Pressure Vessel and CFD pages. The Process Design, Piping in 3D, Instrumentation and bundle pages do not state it, so ask us before buying if this matters to you.



BUNDLE

Founding Engineer Bundle

Rs 60,000 / $700

Separately Rs 136,500 / $1,420. You save Rs 76,500 / $720.

Who it is for

Mechanical and piping engineers, and anyone who works across disciplines or leads people who do.

Skills you build

- Read P&IDs and instrument tags
- Size lines and select piping components
- Design a pressure vessel to code
- Size a PSV and read its datasheet
- Review simulation and CFD work

Today: 9 courses, 73 lessons with site video, about 4.8 hours.

Open bundle page



LEARNING PATH

Founding Engineer Bundle: a suggested order

1	**Foundations**	Learn how projects, roles and documents fit together.
2	**P&ID**	Read the drawing every discipline works from.
3	**Instrumentation**	Understand what each tag measures and how it is sized.
4	**Line Sizing**	Size and check lines against velocity and erosion.
5	**Piping in 3D**	Turn lines into real pipe, flanges and valves.
6	**PSV**	Protect the vessel: relief load to orifice.
7	**Pressure Vessel**	Design the vessel itself to ASME VIII Div. 1.
8	**HYSYS**	Model the process in a simulator.
9	**CFD**	Review flow inside equipment with judgement.

This order is our suggestion. You can start with whichever course you need first.



INCLUDED

Founding Engineer Bundle: today and coming

Course	India	USD	Live today	Coming
Process Engineering Foundations	Rs 14,000	$150	7 lessons live	Complete as sold
How to Read P&ID	Rs 16,000	$190	11 lessons live	7 longer lessons planned, no date
Instrumentation for Oil & Gas	Free	Free	7 parts live	3 parts planned, no date
Line Sizing & API RP 14E	Rs 14,000	$150	5 lessons live today	A new 15-lesson series is planned to replace them, no date
Piping in 3D	Rs 8,500	$100	Preview + Parts 1-5 on site	Parts 8-16 coming, no date
PSV Design: API 520 / 521	Rs 4,000	$50	7 lessons live	Complete as sold
Pressure Vessel Design to ASME VIII Div. 1	Rs 34,000	$390	21 lessons live	5 more planned, no date
HYSYS Simulation	Rs 16,000	$100	4 of 10 episodes live	6 episodes coming, no date
CFD for Process Equipment	Rs 30,000	$290	5 of 8 lessons live	3 lessons coming, no date

Not included: Process Design, MPD and the PV Calculator. **Operations series:** in production, no date; added to this bundle at no extra cost when released. Piping Parts 6-7 have no site video, only a YouTube members link.



BUNDLE

Process Bundle

Rs 39,000 / $450

Separately Rs 80,000 / $830. You save Rs 41,000 / $380.

Who it is for

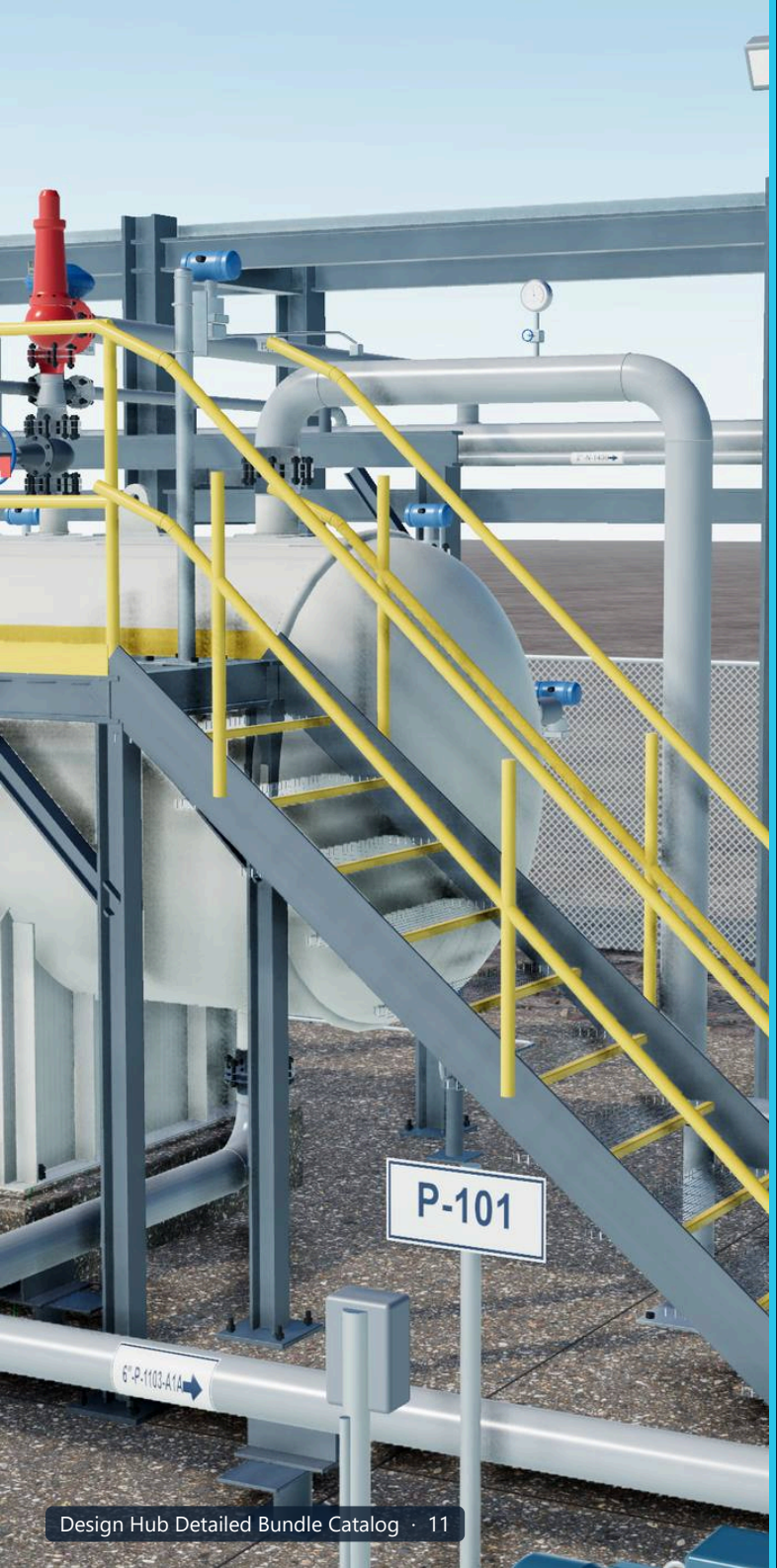
Process engineers who work on the design basis, size equipment and hand data to other disciplines.

Skills you build

- Build a design basis and mass balance
- Turn a heat and mass balance into a PFD
- Size separator gas capacity
- Size lines and PSVs
- Model feed, heater, choke and pipe in HYSYS

Today: 6 courses, 39 lessons with site video, about 3.0 hours.

Open bundle page



LEARNING PATH

Process Bundle: a suggested order

1	**Foundations**	Learn how projects, roles and documents fit together.
2	**P&ID**	Read the drawing every discipline works from.
3	**Process Design**	Follow the plant decisions from basis to sizing.
4	**Line Sizing**	Size and check the plant lines.
5	**PSV**	Size relief for the protected equipment.
6	**HYSYS**	Build the plant in a simulator and check it by hand.

This order is our suggestion. You can start with whichever course you need first.



INCLUDED

Process Bundle: today and coming

Course	India	USD	Live today	Coming
Process Engineering Foundations	Rs 14,000	$150	7 lessons live	Complete as sold
How to Read P&ID	Rs 16,000	$190	11 lessons live	7 longer lessons planned, no date
Process Design: Build the Design Hub Plant	Rs 16,000	$190	5 of 18 lessons live	13 lessons coming, no date
Line Sizing & API RP 14E	Rs 14,000	$150	5 lessons live today	A new 15-lesson series is planned to replace them, no date
PSV Design: API 520 / 521	Rs 4,000	$50	7 lessons live	Complete as sold
HYSYS Simulation	Rs 16,000	$100	4 of 10 episodes live	6 episodes coming, no date

Not included: Pressure Vessel, CFD, Piping in 3D, Instrumentation, MPD and the PV Calculator. You need your own Aspen HYSYS access to follow the HYSYS course.

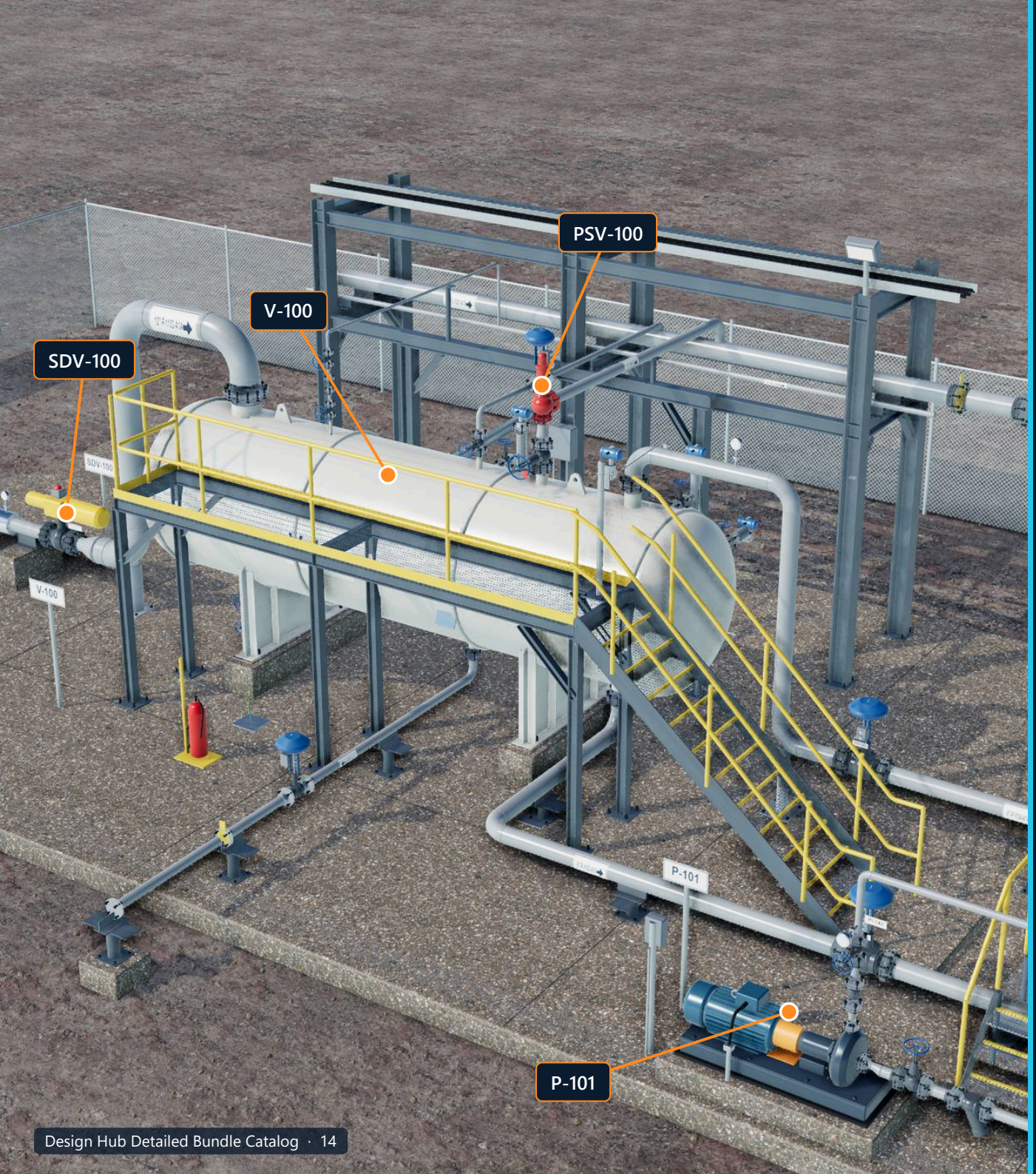


COMPARE

The two bundles, course by course

Course	India	USD	Founding	Process
How to Read P&ID	Rs 16,000	$190	•	•
Process Engineering Foundations	Rs 14,000	$150	•	•
Process Design: Build the Design Hub Plant	Rs 16,000	$190	–	•
Line Sizing & API RP 14E	Rs 14,000	$150	•	•
PSV Design: API 520 / 521	Rs 4,000	$50	•	•
HYSYS Simulation	Rs 16,000	$100	•	•
CFD for Process Equipment	Rs 30,000	$290	•	–
Pressure Vessel Design to ASME VIII Div. 1	Rs 34,000	$390	•	–
Piping in 3D	Rs 8,500	$100	•	–
Instrumentation for Oil & Gas	Free	Free	•	–
Separately			**Rs 136,500 / $1,420**	**Rs 80,000 / $830**
Bundle price			**Rs 60,000 / $700**	**Rs 39,000 / $450**
You save			**Rs 76,500 / $720**	**Rs 41,000 / $380**

Want all ten? Founding Engineer Bundle + Process Design = Rs 76,000 / $890. That is cheaper than buying both bundles (Rs 99,000 / $1,150), because five courses are in both.



COURSE 1 OF 10

How to Read P&ID

Rs 16,000 / $190

Who it is for

Operators and technicians who work from P&IDs on site; students and fresh graduates preparing for a first oil and gas job; process, piping and instrument engineers who review P&IDs.

Prerequisites

None. The course starts from zero and uses one simple separator throughout.

Live today vs coming

11 lessons live · 7 longer lessons planned, no date

Included in

Founding Engineer Bundle | Process Bundle

Open course page



COURSE 1 OF 10

How to Read P&ID: outcomes and curriculum

What you will be able to do today

- Recognise the common valve and actuator symbols and say what "fail closed" and "fail open" mean.
- Read an instrument tag from its ISA 5.1 letters.
- Follow a control loop from transmitter to controller to control valve.
- Find the safety systems on a sheet: SDV, BDV, PSV and interlocks.
- Decode a line number, and read reducers, spec breaks, vents and drains.
- Follow a stream across sheets with off-page connectors, and read utility, flare and drain headers.
- Review a sheet for mistakes (the finale hides 12 for you to find).

Codes and standards named

ISA 5.1

Tools used

None needed.

No.	Lesson	What you learn	Length	Status
1	Part 1: Valve Symbols (Gate, Globe, Ball, Check, Control)	Tell the five common valve symbols apart	1:30	Free preview
2	Part 2: Control Loops (Transmitter, Controller, Control Valve)	Trace a loop from measurement to final element	1:30	Free preview
3	Part 3: Instrument Tag Letters (ISA 5.1)	Read any tag from its first and following letters	1:30	Live
4	Part 4: Safety Systems (SDV, PSV, BDV, Interlocks, Cause & Effect)	Spot the shutdown, blowdown and relief devices and what trips them	1:34	Live
5	Part 5: Valves in Detail (NO/NC, Locked Valves, Actuators, Fail-Safe Positions)	Normal positions, locks, actuator types and what happens on air failure	2:44	Live
6	Part 6: Piping Details (Line Numbers, Reducers, Spec Breaks, Vents & Drains)	Decode a line number and the small piping items around it	2:44	Live
7	Part 7: Equipment in Depth (Data Box, Nozzles, Separator Internals)	Read the equipment data box, nozzle list and internals	3:19	Live



COURSE 1 OF 10

How to Read P&ID: curriculum, continued

No.	Lesson	What you learn	Length	Status
8	Part 8: Following the Flow (Off-Page Connectors & Line Numbers)	Follow oil, water and gas from one sheet to the next	1:37	Live
9	Part 9: Utilities, Vents & Drains (Flare Header, KO Drum, N2 & Instrument Air)	Read the utility and flare connections	3:55	Live
10	Part 10 (Finale): Find the 12 Mistakes on This P&ID	Review a full sheet the way a checker does	5:55	Live
11	Bonus: How to Read a Complicated P&ID	Apply the method to a denser drawing	3:12	Live
12	How to Read P&ID Drawings in 15 Minutes (Full Example)	Read one complete sheet from inlet to outlets, in 10 chapters	-	Coming
13	ISA 5.1 Instrument Tags: Read Any P&ID Tag in 10 Seconds	The tag letter system, with the real instrument shown for each tag	-	Coming
14	PFD vs P&ID: Same Plant, Two Drawings	What each drawing shows and what only the P&ID carries	-	Coming
15	How to Read a Control Loop on a P&ID (3 Loops, 1 Separator)	Level, pressure and flow loops with signal lines and fail positions	-	Coming
16	P&ID Line Number Decoded	Each part of a line number, then the actual pipe and its spec break	-	Coming
17	P&ID Mistakes Checkers Catch Before Issue for Design (Checklist)	A red-pen review of a flawed copy of the season sheet	-	Coming
18	P&ID Interview Questions With the Drawing	Interview questions answered by pointing at the sheet	-	Coming



COURSE 2 OF 10

Process Engineering Foundations

Rs 14,000 / $150

Who it is for

Students, fresh graduates and engineers moving into oil and gas design who want to know how an EPC project and a process team actually work before their first job or first project.

Prerequisites

None beyond first-year engineering. This is an orientation course. It has no design calculations; for those, see the Line Sizing, Pressure Vessel and Process Design courses.

Live today vs coming

7 lessons live · Complete as sold

Included in

Founding Engineer Bundle | Process Bundle

Open course page



COURSE 2 OF 10

Process Engineering Foundations: outcomes and curriculum

What you will be able to do today

- Describe what a process engineer does in an EPC office, on site and in operations.
- Convert between the units used on oil and gas projects (SI and FPS, MMSCFD, BPD, Nm^3/h).
- Tell a PFD from a P&ID and say what each is used for.
- Explain what process design covers beyond the textbook.
- Name the stages of an EPC project from front-end loading to commissioning.
- Say which discipline owns which decision and document.
- Find your way around the main project documents: DBM, BEDD, FEED package, specifications and datasheets.

Codes and standards named

No design code is taught in this course.

Tools used

None needed.

No.	Lesson	What you learn	Length	Status
1	What Does a Process Engineer Do? (EPC vs Site vs Operations)	The three kinds of process engineering job and how the work differs	6:14	Free preview
2	Units & Conversions (SI vs FPS, MMSCFD, BPD, Nm^3/h)	The units used on oil and gas projects and how to convert them	4:10	Free preview
3	PFD vs P&ID Explained	The difference between a PFD and a P&ID	4:03	Live
4	What Process Design Really Is: Beyond the Textbook	How design decisions are made on a real project	2:40	Live
5	The EPC Project Lifecycle: From FEL to Commissioning	The project stages and what the process team delivers in each	3:12	Live
6	Stakeholders & Disciplines: Who Owns What	The disciplines around the process engineer and the hand-offs between them	3:00	Live
7	The Document Universe: DBM, BEDD, FEED, Specs & Datasheets	The main project documents and how they connect	2:51	Live



COURSE 3 OF 10

Process Design: Build the Design Hub Plant

Rs 16,000 / $190

Who it is for

Process engineers with 0-8 years of experience, and mechanical, piping and instrument engineers who want to see how the process decisions behind their own work are made.

Prerequisites

Degree-level basics (mass balance, gas law, pressure drop). Process Engineering Foundations helps if you are new to EPC work.

Live today vs coming

5 of 18 lessons live · 13 lessons coming, no date

Included in

Process Bundle

Open course page



COURSE 3 OF 10

Process Design: Build the Design Hub Plant: outcomes and curriculum

What you will be able to do today

- Write a design basis for an oil and gas facility and close its mass balance.
- Set design pressure and temperature from operating data and explain the margin to MAWP.
- Build a heat and mass balance and turn it into a PFD.
- Explain why a choke outlet can form hydrates and work out the heater duty that prevents it.
- Size separator gas capacity with the Souders-Brown method.

Codes and standards named

API 521

Tools used

The Design Hub Plant design basis, published on the site.

Coming lessons are meant to cover

- Size a separator for liquid retention, and place its levels and nozzles.
- Size a pump with its NPSH check, and set the basis for the tank, compressor, scrubbers and plant lines.
- Write the control and shutdown philosophy, size relief and blowdown, and take part in a HAZOP of the plant.

No.	Lesson	What you learn	Length	Status
1	Lesson 1 · Oil & Gas Process Design: Full Worked Example	The 18 decisions of the plant in order, and the plant mass balance	13:43	Free preview
2	Lesson 2 · Design Pressure vs MAWP: Set a Design Basis in 3 Steps	Operating, design and MAWP for V-100 and what the margin costs	9:26	Live
3	Lesson 3 · Heat and Mass Balance to PFD	Stream-by-stream balance and the PFD built from it	10:16	Free preview
4	Lesson 4 · Why Chokes Freeze: Hydrates and Heater Duty	Temperature drop across the choke, hydrate risk and the heater duty	5:57	Live
5	Lesson 5 · Separator Gas Sizing: Souders-Brown Worked Example	Gas capacity of V-100 from the K-value and the gas space	7:10	Live
6	Lesson 6 · 3-Phase Separator Design: Retention Time and Levels	Liquid retention, level stack and time to act between alarm and trip	-	Coming
7	Lesson 7 · Separator Nozzles: Inlet Devices and Momentum	Nozzle sizing by momentum and the inlet device choice	-	Coming
8	Lesson 8 · Pump Sizing and NPSH: Worked Example	Head, flow and NPSH available at the lowest level	-	Coming



COURSE 3 OF 10

Process Design: Build the Design Hub Plant: curriculum, continued

No.	Lesson	What you learn	Length	Status
9	Lesson 9 · Storage Tank Design: Venting and Size	Tank size for the process and why venting matters	-	Coming
10	Lesson 10 · Gas Compressor and Scrubber Design	Stage count, discharge temperature and scrubbers before each stage	-	Coming
11	Lesson 11 · Line Sizing for a Whole Plant: Criteria and Line List	Sizing criteria applied across the plant and the line list	-	Coming
12	Lesson 12 · Control Philosophy: 3 Loops That Run a Separator	Level and pressure loops, valve fail positions and gas blow-by	-	Coming
13	Lesson 13 · Shutdown vs Control: SIS and Cause & Effect	What trips, why it is separate from control, and the cause and effect chart	-	Coming
14	Lesson 14 · Relief Scenarios and PSV Sizing (API 521)	Relief cases for V-100 and the PSV size that covers them	-	Coming
15	Lesson 15 · Blowdown and Flare Design	Depressuring target, flare header and knock-out drum	-	Coming
16	Lesson 16 · Material Selection and Corrosion Allowance	The process side of material choice and where the corrosion allowance comes from	-	Coming
17	Lesson 17 · Plot Plan and Equipment Layout	Why equipment sits where it does: spacing and radiation	-	Coming
18	Lesson 18 · HAZOP Study Example: 10 Deviations on One Separator	A HAZOP of V-100 using everything from Lessons 1 to 17	-	Coming



COURSE 4 OF 10

Line Sizing & API RP 14E

Rs 14,000 / $150

Who it is for

Process and piping engineers (0-8 years) who size or check lines on oil and gas projects, and final-year students preparing for a design-office job.

Prerequisites

Basic fluid mechanics (velocity, density, Reynolds number, friction factor). No software is needed.

Live today vs coming

5 lessons live today · A new 15-lesson series is planned to replace them, no date

Included in

Founding Engineer Bundle | Process Bundle

Open course page



COURSE 4 OF 10

Line Sizing & API RP 14E: outcomes and curriculum

What you will be able to do today

- Explain why a line is sized on velocity, pressure drop and erosion together, not on one rule.
- Follow the API RP 14E erosional velocity check on a line.
- Describe how offshore and onshore production piping is sized under API RP 14E.

Codes and standards named

API RP 14E

Tools used

The API RP 14E line sizing calculator on the site.

Coming lessons are meant to cover

- Pick the governing criterion for a gas, liquid or two-phase line and check it at maximum flow and at turndown.
- Size a pump suction line from its pressure-drop budget and see the NPSH cost of a small suction.
- Size separator liquid outlets, gas lines, fuel gas, control-valve, relief and compressor lines on one plant.
- Fill a line list and a line sizing sheet, and find the errors a checker looks for.

The 5 lessons below are live today. A new 15-lesson series is planned to replace them, with no date.

No.	Lesson	What you learn	Length	Status
A1	Line Sizing Explained: Process Design Basics	What line sizing decides and which inputs it needs	3:23	Free preview
A2	Why Line Sizing Fails in the Field	Why line sizing goes wrong in the field	5:06	Free preview
A3	Line Sizing Calculation per API RP 14E: Erosional Velocity	The erosional velocity equation and how to apply it	3:46	Live
A4	How Is Offshore Piping Designed? API RP 14E Deep Dive	How API RP 14E is used to size production piping	7:14	Live
A5	API RP 14E for Offshore Piping Systems: Engineer Like a Pro	API RP 14E applied to offshore piping systems	6:14	Live
1	Line Sizing Criteria: Which Rule Sizes Each Line?	Which criterion governs each of the four V-100 lines, checked at maximum flow	-	Coming
2	API RP 14E Erosional Velocity: Size a Two-Phase Line	Size the two-phase inlet line, compare C-factor choices, and check the same size at turndown	-	Coming



COURSE 4 OF 10

Line Sizing & API RP 14E: curriculum, continued

No.	Lesson	What you learn	Length	Status
3	Pump Suction Line Sizing: Why 4″ In, 2″ Out	Size a suction line by pressure drop and see what it costs in NPSH	-	Coming
4	Liquid Line Sizing by Pressure Drop: Separator Outlets	Size the oil and water outlets; why a velocity limit is a ceiling, not a size	-	Coming
5	Gas Line Sizing: 6 Inch or 8 Inch at 12 barg?	Compare two sizes on velocity, pressure drop, ρv^2 and noise; a guide is not a code limit	-	Coming
6	Two-Phase Flow Regimes: Slugging in the Inlet Line	Read a flow-regime map and check the minimum velocity at turndown	-	Coming
7	Fuel Gas Line Sizing: Low Pressure Drop to a Burner	Work a pressure-drop budget from the take-off to the burner train	-	Coming
8	Control Valve Inlet and Outlet Line Sizing	Why the valve is smaller than the line, and how to size the outlet for flashing	-	Coming
9	Flare and PSV Line Sizing: Inlet Loss, Outlet Mach	Check PSV inlet loss and tailpipe Mach number and back pressure	-	Coming
10	Compressor Suction and Discharge Line Sizing	What suction pressure drop costs in power; discharge velocity at high pressure	-	Coming
11	Sand in Pipelines: Minimum Velocity and Erosion	Settling velocity against erosion, and when the usual C-factor stops being valid	-	Coming
12	Line List and Line Sizing Sheet: How to Fill It	What goes on a line list, with the criterion used and the governing check	-	Coming
13	HYSYS Line Sizing Check: Hand Calc vs Beggs-Brill	Compare the hand calculation with the simulator on one line and decide which to trust	-	Coming
14	Line Sizing Mistakes a Checker Catches	Seeded errors on the plant line list and how to spot each	-	Coming
15	Line Sizing Capstone: Size Every Line of a Separator Unit	A full hydraulic summary of the V-100 unit, each line with its governing criterion	-	Coming



COURSE 5 OF 10

PSV Design: API 520 / 521

Rs 4,000 / $50

Who it is for

Process engineers and graduates who need a first, clear picture of how a pressure safety valve is sized and documented; operators and technicians who want to know what the PSV datasheet numbers mean.

Prerequisites

Basic gas properties (molecular weight, compressibility, k) and unit conversions. No software is needed.

Live today vs coming

7 lessons live · Complete as sold

Included in

Founding Engineer Bundle | Process Bundle

Open course page



COURSE 5 OF 10

PSV Design: API 520 / 521: outcomes and curriculum

What you will be able to do today

- Explain what happens inside a spring-loaded PSV as it lifts and reseats.
- Follow the API 520 gas and vapour sizing procedure.
- Explain why inlet pressure loss and back pressure matter.
- Follow a fire-case relief load (API 521) through to an orifice size (bonus worked example).
- Read a relief design report and a PSV datasheet.
- Describe how a PSV is tested and certified (bench test, certified Kd, seat tightness to API 527).

Codes and standards named

API 520, API 521, API 527

Tools used

None needed. The PSV calculator on the site is a separate Pro tool and is not included.

No.	Lesson	What you learn	Length	Status
1	Lesson 1: What Happens Inside a PSV?	The parts of the valve and the lift and reseat sequence	1:00	Free preview
2	Lesson 2: API 520 Gas & Vapour PSV Sizing Procedure	The API 520 sizing procedure for gas and vapour	1:40	Free preview
3	Lesson 3: Inlet Pressure Loss & Back Pressure	Inlet pressure loss and back pressure	1:46	Live
4	Lesson 4: Fire Case Relief Load (API 521)	The fire-case relief load to API 521	2:43	Live
5	Lesson 5: Relief Design Report & PSV Datasheet	What the report and datasheet contain and who fills each line	2:40	Live
6	Lesson 6: Testing & Certification (Bench Test, Certified Kd, API 527)	How a valve's capacity and tightness are proven	2:48	Live
7	Bonus: PSV Orifice Sizing, Fire Case Worked Example (API 521 + API 520)	One fire case worked from load to orifice	5:27	Live



COURSE 6 OF 10

HYSYS Simulation

Rs 16,000 / $100

Who it is for

Process engineers and students who want to learn Aspen HYSYS on a real oil and gas plant instead of a toy feed; design engineers who receive simulation results and need to know what they can and cannot be used for.

Prerequisites

Basic process engineering (phases, pressure, temperature, mass balance). To follow along in the software you need your own access to Aspen HYSYS; the course does not include a licence. The videos use Aspen HYSYS V11. Without the software you can still watch: the key checks in each episode are also done by hand.

Live today vs coming

4 of 10 episodes live · 6 episodes coming, no date

You need your own Aspen HYSYS access to follow along. No licence is included.

Included in

Founding Engineer Bundle | Process Bundle

Open course page



COURSE 6 OF 10

HYSYS Simulation: outcomes and curriculum

What you will be able to do today

- Turn a design basis (MMSCFD, bbl/d, specific gravity) into a HYSYS feed and check it against the basis in kg/h.
- Build a phase envelope and a hydrate curve and tell when a choke outlet is at risk of hydrates.
- Model a heater and a choke with Set and Adjust, and explain why the simulator and a one-line hand calculation give different duties.
- Model a pipe segment and compare its pressure drop with a hand calculation.

Codes and standards named

No design code is taught in this course.

Tools used

Your own Aspen HYSYS (not included). The videos use V11. Without it you can still watch; key checks are also done by hand.

Coming lessons are meant to cover

- Model the three-phase separator and export the stream table.
- Take simulation results to a datasheet without mixing up operating and design conditions.
- Model a two-stage compressor, run a first dynamic case, run a depressuring study and assemble the whole plant in one case.

No.	Lesson	What you learn	Length	Status
1	Episode 1 · Build a real oil & gas feed in HYSYS	Component list, a C7+ hypothetical, fluid package, three feeds and a mixer, flash at separator conditions	8:41	Free preview
2	Episode 2 · Phase envelope and hydrate curve in HYSYS	Envelope and hydrate analysis; when the choke outlet gets too cold	8:04	Free preview
3	Episode 3 · Heater and choke in HYSYS (Set and Adjust)	Heater and valve models, Set and Adjust, a case study on inlet temperature	8:44	Free preview
4	Episode 4 · Pipe pressure drop in HYSYS (Pipe Segment vs hand calc)	Pipe Segment with a multiphase correlation, and why it differs from the hand result	8:29	Live
5	Three-Phase Separator in HYSYS: V-100 and the Stream Table	3-phase separator, workbook, stream table and export to Excel	-	Coming
6	From Simulation to Datasheet: Operating vs Design Conditions	Normal, maximum and shut-in cases; what the simulator gives and what the code gives	-	Coming
7	Two-Stage Compressor in HYSYS: 12 to 62 barg	Two stages, coolers, scrubbers, recycle of scrubber liquids	-	Coming
8	HYSYS Dynamics: Run the Alarms on V-100	A first dynamic run on the separator's level and pressure loops	-	Coming



COURSE 6 OF 10

HYSYS Simulation: curriculum, continued

No.	Lesson	What you learn	Length	Status
9	Depressuring in HYSYS: Blowdown Time and Minimum Metal Temperature	Depressuring analysis and the coldest temperature on the way down	-	Coming
10	The Whole Plant in One HYSYS Case: PFD, P&ID and the Scorecard	Sub-flowsheets, the heat and mass balance table, and a hand-calc vs simulation scorecard	-	Coming



COURSE 7 OF 10

CFD for Process Equipment

Rs 30,000 / $290

Who it is for

Process, piping and mechanical engineers who use or review CFD on separators, flares and relief systems; graduates starting CFD who want the engineering judgement before the software.

Prerequisites

Basic fluid mechanics (pressure drop, Reynolds number, friction factor). No CFD software is needed to follow. The lessons teach the decisions (set-up, mesh, model, checks); they are not button-by-button training for one CFD package.

Live today vs coming

5 of 8 lessons live · 3 lessons coming, no date

Teaches the engineering decisions. It is not button training for one CFD package.

Included in

Founding Engineer Bundle

Open course page



COURSE 7 OF 10

CFD for Process Equipment: outcomes and curriculum

What you will be able to do today

- Set up a case from hand calculations: Reynolds number, Mach number, y+ and first-cell height.
- Plan an inflation-layer mesh and prove mesh independence with the Grid Convergence Index.
- Choose a turbulence model for a rough-wall pipe or nozzle and say what each choice costs in accuracy.
- Compare separator inlet devices by inlet momentum.
- Check droplet separation two ways: the Souders-Brown limit and droplet tracking.

Codes and standards named

API 521

Tools used

No CFD software needed to follow. The lessons teach decisions, not buttons in one package.

Coming lessons are meant to cover

- Set up a flare tip jet with wind, treat a high-velocity PSV tailpipe as compressible flow, and verify a CFD result against hand calculations.

No.	Lesson	What you learn	Length	Status
1	Lesson 1: Setting Up the Case (Reynolds, Mach and y+)	Work out the flow regime and the first-cell height before you mesh	2:16	Free preview
2	Lesson 2: Inflation Layers and Mesh Independence (GCI)	Build the near-wall layers and run a four-grid independence study	2:18	Free preview
3	Lesson 3: Choosing a Turbulence Model (k-ε vs SST vs Mixing Length)	Compare three models against the Colebrook result on the same pipe	2:02	Live
4	Lesson 4: Separator Inlet Devices (Momentum, Vane vs Half-Pipe vs Diverter)	Use inlet momentum to choose an inlet device	2:25	Live
5	Lesson 5: Droplet Separation (Souders-Brown vs Droplet Tracking, DPM)	Check carry-over with a K-value and with particle tracking	2:02	Live
6	Part 6: Flare tip: jet, wind and radiation	Jet exit velocity and flame tilt against the API 521 radiation method	-	Coming
7	Part 7: High-velocity gas: PSV tailpipe and Mach	A compressible solve compared with the isothermal hand calculation	-	Coming
8	Part 8: Verify: CFD against hand calcs	Pressure drop vs Darcy, mass balance, residuals vs monitored quantities	-	Coming



COURSE 8 OF 10

Pressure Vessel Design to ASME VIII Div. 1

Rs 34,000 / $390

Who it is for

Mechanical and process engineers who design, check or buy carbon-steel pressure vessels for oil and gas; graduate engineers learning the code calculation; inspectors and vendors' engineers who read vessel calcs.

Prerequisites

Strength of materials at degree or diploma level (stress, bending). You do not need your own copy of the code to follow, but you need your project's code edition to do real work: allowable stresses and some limits depend on the edition.

Live today vs coming

21 lessons live · 5 more planned, no date

You need your project's code edition for real work.

Included in

Founding Engineer Bundle

Open course page



COURSE 8 OF 10

Pressure Vessel Design to ASME VIII Div. 1: outcomes and curriculum

What you will be able to do today

- Set a design basis: design pressure, design temperature, MAWP, MDMT and corrosion allowance, with the reason for each.
- Calculate shell thickness (UG-27) and head thickness (UG-32) for internal pressure and pick the plate.
- Check a nozzle opening by area replacement (UG-37) and the nozzle neck (UG-45).
- Check a vessel for external pressure and full vacuum, and size stiffening rings (UG-28, UG-29).
- Decide on impact testing from the MDMT rules (UCS-66, UG-20(f)), choose joint efficiency and radiography (UW-11, UW-12) and set the hydrotest pressure (UG-99).
- Check saddle supports with the Zick method, and a vertical vessel's flange class, cone, skirt, anchor bolts and lifting lugs on a second vessel.

Codes and standards named

ASME VIII Div. 1, UG-27, UG-32, UG-45, UG-37, UG-28, UG-29, UCS-66, UG-20(f), UW-11, UW-12, UG-99, B16.5, UG-46, IS 875-3, IS 1893-4

Tools used

None needed to follow. For real work you need your project's code edition.

Coming lessons are meant to cover

- Run one complete calculation end to end on the 70 barg vertical vessel, and deal with thick-wall rules (full radiography, PWHT, impact test), nozzle loads and a Div 1 vs Div 2 comparison.

No.	Lesson	What you learn	Length	Status
1	Part 1: The design basis (design pressure, MAWP, MDMT)	Set design pressure and temperature from operating data; what MAWP and MDMT mean	3:15	Free preview
2	Part 2: Shell thickness under internal pressure (UG-27)	The UG-27 formulas, static head, mill tolerance and plate choice	3:02	Free preview
3	Part 3: The heads, ellipsoidal vs torispherical vs hemispherical (UG-32)	Thickness of each head type and why the choice changes weight and cost	3:02	Live
4	Part 4: Nozzle reinforcement, UG-45 neck and UG-37 area replacement	The area balance around an opening and when a pad is needed	2:15	Live
5	Part 5: External pressure, full vacuum and stiffening rings (UG-28 / UG-29)	The chart method for vacuum and how rings shorten the design length	2:09	Live
6	Part 6: MDMT and impact-test exemption (UCS-66 / UG-20(f))	Read the exemption curves and decide whether Charpy testing is needed	2:32	Live



COURSE 8 OF 10

Pressure Vessel Design to ASME VIII Div. 1: curriculum, continued

No.	Lesson	What you learn	Length	Status
7	Part 7: Joint efficiency, radiography and the hydrotest (UW-11 / UW-12 / UG-99)	How the radiography choice sets E, and the hydrotest pressure and stress check	2:44	Live
8	Part 8: Saddles, wind and seismic loads (Zick method)	Saddle position and the Zick stress checks	2:18	Live
9	Episode 1: ASME VIII Div. 1, MAWP, Design Pressure & MDMT	What the code covers and the terms used in every calc	4:19	Live
10	Operating Pressure vs Design Pressure vs MAWP vs MOP	The four pressures and how they relate	6:31	Live
11	Episode 2: Design Basis & Mechanical Datasheet (Design Pressure, DT, MDMT)	The design basis and the mechanical datasheet	8:17	Live
12	Episode 3: Shell & Head Thickness Under Internal Pressure	The thickness calculation, explained at length	8:53	Live
13	Episode 4: External Pressure / Vacuum Check & Stiffening Rings	The vacuum check, explained at length	6:45	Live
14	Episode 5A: Nozzles, Openings & the Nozzle Schedule	How openings are listed, sized and reinforced	8:20	Live
15	Episode 7A: Supports & Saddles (Fixed vs Sliding)	Why one saddle is fixed and one slides	3:24	Live
16	Episode 7B: Nozzle Loads (Forces & Moments) and the Piping Stress Loop	How piping loads reach the nozzle and who checks them	3:21	Live
17	PSV Set Pressure Mistakes You Must Avoid	Common mistakes in PSV set pressure	4:39	Live
S2-1	Pressure Vessel Design Calculation: Full Worked Example (flagship)	V-200 end to end: basis, shell, heads, one nozzle, MAWP, hydrotest	-	Coming
S2-2	35 mm Shell, 38 mm Heads: RT, PWHT and Charpy	The thickness thresholds that trigger full radiography, PWHT and the impact test	-	Coming
S2-3	Season 2 · Ep 3 · Flange class and manway: the flange that sets the MAWP (B16.5, UG-46)	Why the flange rating, not the shell, can set the nameplate pressure	8:00	Live
S2-4	Season 2 · Ep 4 · Cones: why they stop at 30° (UG-32, Appendix 1-5)	Cone thickness and the junction check, as a stated what-if on V-200	6:50	Live



COURSE 8 OF 10

Pressure Vessel Design to ASME VIII Div. 1: curriculum, continued

No.	Lesson	What you learn	Length	Status
S2-5	Season 2 · Ep 5 · Skirt and anchor bolts: wind vs earthquake (IS 875-3, IS 1893-4)	Base moment, skirt and anchor bolt checks for a vertical vessel	7:34	Live
S2-6	Season 2 · Ep 6 · Lifting lugs: why a lug fails at 108% while upending	Lift and tailing loads and the lug checks	5:43	Live
S2-7	Nozzle Loads: When Reinforcement Passes but the Shell Still Cracks	Local shell stress from piping loads; nozzle weld strength	-	Coming
S2-8	ASME Div 1 vs Div 2: The Same Vessel, Designed Both Ways (finale)	What Div 2 saves in plate and what it asks for in return	-	Coming
Capstone	V-200: From Calc to Nameplate (website lesson, no video)	Pneumatic test, nameplate, data report and relief requirements	-	Coming



COURSE 9 OF 10

Piping in 3D

Rs 8,500 / $100

Who it is for

Piping and process engineers in their first years, designers and draughtsmen who want the reason behind the piping rules, and students. The 3-D views (cutaways, growth, sag) show what a 2-D slide cannot.

Prerequisites

Basic mechanics (stress, pressure). No software is needed.

Live today vs coming

Preview + Parts 1-5 on site · Parts 8-16 coming, no date

Parts 6-7 have no site video, only a YouTube members link, so they need a channel membership.

Included in

Founding Engineer Bundle

Open course page



COURSE 9 OF 10

Piping in 3D: outcomes and curriculum

What you will be able to do today

- Calculate the pressure design wall thickness of a pipe to ASME B31.3 and choose a schedule.
- Check a flange class against design pressure at temperature (ASME B16.5) and see why the flange can be the weakest part of a line.
- Explain a flange bolt-up: bolt stress, gasket seating and tightening pattern (ASME PCC-1).
- Choose between gate, globe, ball and check valves for isolation, throttling and backflow.
- Check a two-phase line against erosional velocity (API RP 14E).
- Set a support span from sag and stress, and estimate thermal growth and the loop needed to absorb it. (Parts 6-7: YouTube members link)

Codes and standards named

ASME B31.3, B16.5, B16.9, ASME PCC-1, API RP 14E

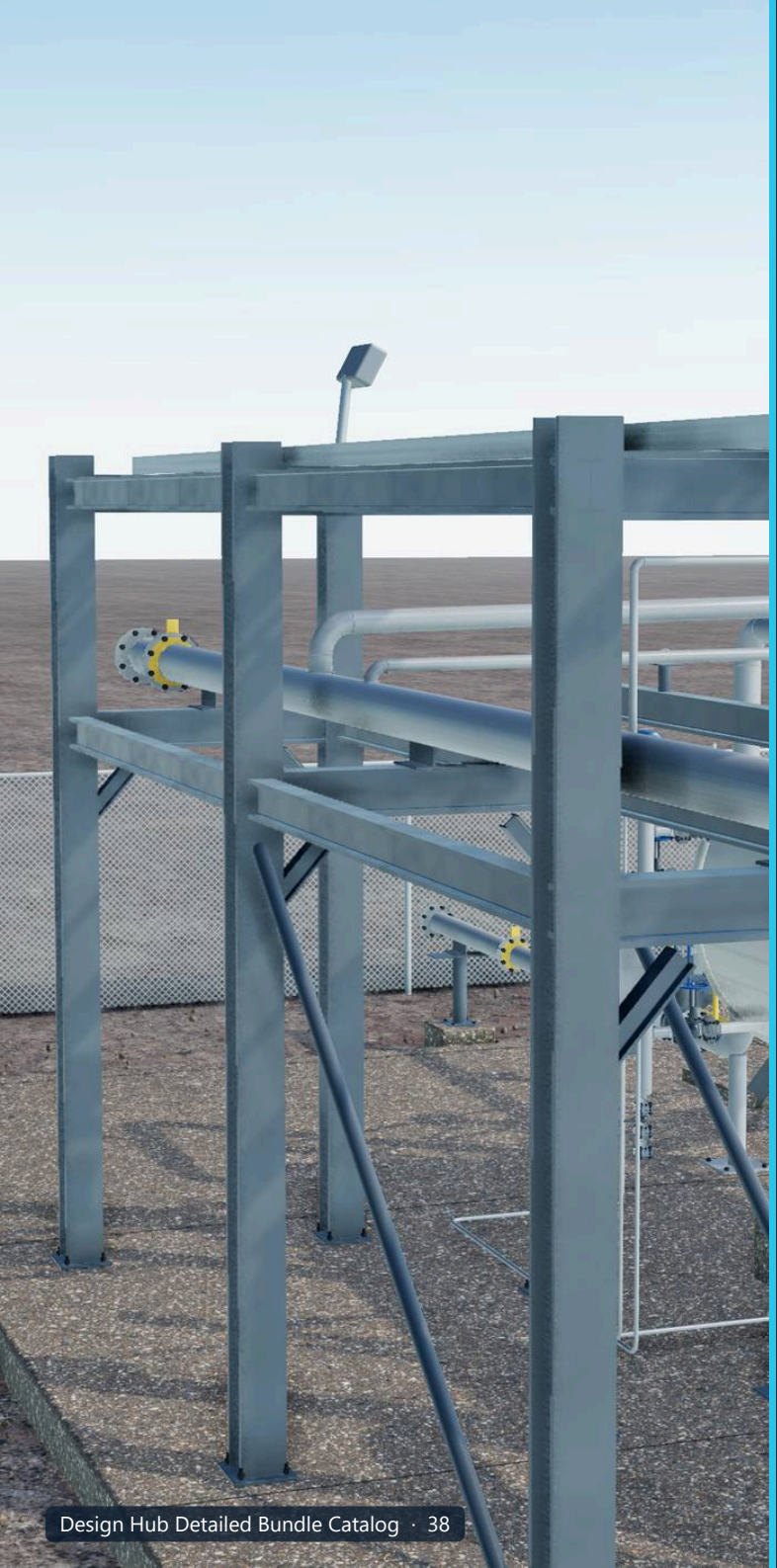
Tools used

No software needed.

Coming lessons are meant to cover

- Estimate the force and moment a hot line puts on its end point, choose anchors, guides, shoes and springs, and set a valve closure time against water hammer.
- Screen a line for sustained, thermal and occasional stress (B31.3), place vents and drains, and check a branch for reinforcement.
- Go from P&ID to isometric with a pipe class and MTO, set the hydrotest pressure (B31.3 345), and run the whole line as one worked B31.3 calculation.

No.	Lesson	What you learn	Length	Status
0	Preview · Why hot pipes need room to grow	What thermal growth does to a restrained line	1:28	Free preview
1	Part 1 · Pipe size, schedule & wall thickness (B31.3 304.1.2)	Pressure design thickness, corrosion allowance, mill tolerance, schedule choice	3:27	Free preview
2	Part 2 · Fittings & flanges: the rating trap (B16.5, B16.9)	Flange class against pressure at temperature; fitting geometry	2:54	Live
3	Part 3 · The flange joint, exploded (ASME PCC-1 bolt-up)	Bolt stress, gasket seating and the tightening pattern	3:14	Live
4	Part 4 · Valves: what's inside & which to pick	Cutaways of four valve types and a selection matrix	2:25	Live
5	Part 5 · Line sizing & erosional velocity (API RP 14E)	Mixed-phase velocity against the erosional limit for three sizes	2:23	Live
6	Part 6 · Pipe support spacing: stress vs sag (B31.3)	Allowable span by deflection and by stress	-	Members link



COURSE 9 OF 10

Piping in 3D: curriculum, continued

No.	Lesson	What you learn	Length	Status
7	Part 7 · Thermal expansion & loops (B31.3 319)	Growth, restrained stress, anchor load and loop size	-	Members link
8	Part 8 · Pipe Nozzle Loads: Force and Moment From Thermal Growth	How the thermal growth becomes force and moment at the line end, and three fixes ranked by load removed	-	Coming
9	Part 9 · Pipe Support Types: Anchor, Guide, Shoe and Spring	What each support does and where it sits on 6"-P-1001; shoe height and length	-	Coming
10	Part 10 · Water Hammer in Piping: Valve Closure Time and Surge	Surge from a fast valve closure, critical closure time 2L/a	-	Coming
11	Part 11 · Pipe Stress Analysis Basics: Sustained, Thermal, Occasional	The three load cases against their allowables and the B31.3 screen for when a stress program is needed	-	Coming
12	Part 12 · Pipe Slope, High Point Vents and Low Point Drains	Slope the route, find high and low points, place vents and drains	-	Coming
13	Part 13 · Branch Reinforcement B31.3: Does a Drain Branch Need a Pad?	Area replacement check on the drain branch: pad or no pad	-	Coming
14	Part 14 · P&ID to Isometric: Pipe Class, Line List and MTO	Read the line off the P&ID, one pipe class sheet, the isometric and the MTO	-	Coming
15	Part 15 · Hydrotest Pressure Calculation for Piping, B31.3 345	Test pressure, test stress and the test-pack boundary at the spec break	-	Coming
16	Part 16 · Piping Design Calculation: Full B31.3 Worked Example	Capstone: the whole line on one calc sheet, with the check that governed	-	Coming



COURSE 10 OF 10

Instrumentation for Oil & Gas

Free

Who it is for

Instrument technicians and engineers, operators, process engineers and students who want to know how each instrument on a separator is chosen, sized and installed, and what goes on its datasheet.

Prerequisites

School-level physics. Reading a P&ID helps (see the How to Read P&ID course).

Live today vs coming

7 parts live · 3 parts planned, no date

Free to enrol.

Included in

Founding Engineer Bundle

Open course page



COURSE 10 OF 10

Instrumentation for Oil & Gas: outcomes and curriculum

What you will be able to do today

- Work out the real accuracy of a measurement loop from range, span and the error terms, and scale 4-20 mA to engineering units.
- Choose a pressure gauge and transmitter range, and lay out an impulse line that does not add error.
- Choose between an RTD and a thermocouple, and check a thermowell against wake-frequency failure.
- Size an orifice plate to ISO 5167 and explain square-root turndown.
- Choose a flowmeter type for gas, oil and water service by what happens at minimum flow.
- Compare DP, displacer and guided-wave radar level measurement, including the effect of a density error.

Codes and standards named

ISO 5167

Tools used

The Impulse Line Lab in Design Hub Labs.

Coming lessons are meant to cover

- Size a liquid and a gas control valve, check noise, and work a simple SIL calculation for a shutdown function.

No.	Lesson	What you learn	Length	Status
1	Part 1 · The measurement loop: range, accuracy & 4–20 mA	Range, span, turndown, total probable error and fault currents	3:31	Free preview
2	Part 2 · Pressure gauges, transmitters & impulse lines	Gauge and transmitter ranges, overrange, impulse-line slope, diaphragm seals	3:48	Free preview
3	Part 3 · Temperature: RTD vs thermocouple & the thermowell wake check	Sensor error at operating temperature and the thermowell vibration check	3:32	Live
4	Part 4 · Orifice plate sizing (ISO 5167) & square-root turndown	Beta ratio, differential pressure, straight lengths, turndown	3:21	Live
5	Part 5 · Choosing a flowmeter: which one survives minimum flow	A scored selection for gas, oil and water outlets	4:03	Live
6	Part 6 · Level: DP, displacer & guided-wave radar	Wet and dry legs, interface measurement, density sensitivity	4:33	Live
7	Part 7 · Level set points: alarms, trips & gauges	Alarm and trip heights from time to act; gauge types; independent nozzles	3:37	Live



COURSE 10 OF 10

Instrumentation for Oil & Gas: curriculum, continued

No.	Lesson	What you learn	Length	Status
8	Part 8 · Control valves I: sizing a liquid valve (LV-101)	Cv at minimum, normal and maximum flow; choked and flashing checks; % opening	-	Coming
9	Part 9 · Control valves II: the gas valve, noise & the actuator (PV-102)	Gas Cv, choked-flow check, predicted noise, fail position	-	Coming
10	Part 10 · Safety instruments: SIL, voting & selection for hazardous areas	PFDavg for 1oo1, 1oo2 and 2oo3 voting; proof-test interval; Ex marking	-	Coming



SKILLS MATRIX

Which courses matter for your role

Role	Foundations	P&ID	Process Design	Line Sizing	PSV	HYSYS	CFD	Pressure Vessel	Piping in 3D	Instrumentation
Process engineer	●	●	●	●	●	●	○	○		○
Piping engineer	○	●		●	○			○	●	
Mechanical engineer		○			○		○	●	●	
Instrument engineer	○	●			○					●
Student / new graduate	●	●	○	○	○					●
Manager / lead	●	●	○		○			○	○	○

● core for the role ○ useful next. This is our suggestion, not a job requirement.



DECISION CHART

Which bundle fits you

Your role	Our advice	Why	Honest alternative
Process engineer	**Process Bundle**	Process Design + HYSYS + core skills.	Only the design course: Process Design, Rs 16,000 / $190.
Piping engineer	**Founding Engineer Bundle**	The only bundle with Piping in 3D.	Only piping: Piping in 3D, Rs 8,500 / $100.
Mechanical engineer	**Founding Engineer Bundle**	The only bundle with Pressure Vessel.	Only vessels: Pressure Vessel, Rs 34,000 / $390.
Instrument engineer	**No bundle needed yet**	Start with Instrumentation (free).	Add P&ID, Rs 16,000 / $190.
Student / new graduate	**One course first**	Foundations, Rs 14,000 / $150, plus free Instrumentation.	Sure of a process career: Process Bundle.
Manager / lead	**Founding Engineer Bundle**	The widest view across disciplines.	Lead a process team: Process Bundle.

Simple rule: if you want only one or two courses, price them singly first. Any two courses in the Process Bundle cost less than the bundle. The Founding bundle beats Pressure Vessel + CFD in rupees (Rs 60,000 vs Rs 64,000), but not in USD ($700 vs $680).



FAQ

Questions about access

How do I access the lessons?

Lessons are videos on designhubindia.org. Sign in to your account to open the courses you bought.

Can I watch on my phone?

The P&ID course page states access on phone or laptop. The lessons play in a web browser.

How long do I keep access?

The HYSYS, P&ID, Foundations, Line Sizing, PSV, Pressure Vessel and CFD pages state lifetime access. The Process Design, Piping, Instrumentation and bundle pages do not state it, so ask us first if this matters.

Can I try before I pay?

Yes. Paid courses have free preview lessons, marked in this catalog. Instrumentation is free to enrol.

When do Coming lessons arrive?

They have no promised dates. Please buy for what is live today.

Do I get new lessons?

Course pages that cover this say you keep lessons added later. The Operations series will be added to the Founding Engineer Bundle at no extra cost when released.



FAQ

Questions about payment and policy

How do I pay from India?

The website currently shows USD at checkout, even in India. For the rupee price, WhatsApp +91 90045 21699 and ask for a UPI link.

What is the refund policy?

Self-paced courses: full refund if requested within 7 days of purchase and less than 20% of the course is completed. Email support@designhubindia.org with your registered email and order number. Approved refunds return to the original payment method in 5-7 business days. The policy does not mention bundles separately, so ask before buying if unsure.

Is there a certificate?

This catalog does not promise one. Course pages differ on this, so check the page of your course or ask us before buying.

Do I need software?

Only HYSYS needs your own Aspen HYSYS to follow along. No licence is included.

Why do Piping Parts 6-7 say Members link?

They have no site video yet, only a YouTube members link, so watching them needs a channel membership.

Should I buy both bundles?

No. Founding Engineer Bundle + Process Design gives all ten courses for Rs 76,000 / $890.



HOW TO BUY

Two simple routes

In India: pay by UPI

The website currently shows USD at checkout, even in India. To pay the rupee price, message us on WhatsApp and ask for a UPI payment link.

+91 90045 21699

WhatsApp for a UPI link

Outside India: pay online

Open the bundle or course page and use Add to cart. The price is in USD.

Founding Engineer Bundle, $700

Process Bundle, $450

In India, tell us which one you want

Founding Engineer Bundle	Rs 60,000	9 courses
Process Bundle	Rs 39,000	6 courses
A single course	See its catalog page	1 course

designhubindia.org