

Pressure Vessel Analysis using PV Elite

Build practical skills in PV Elite and CodeCalc for pressure-vessel and heat-exchanger design. Across seven courses, you will work through the software interfaces, vessel setup, nozzles, openings, flanges, tubesheets, saddles, load input, and output reporting. Video lessons, quizzes, and worked exercises show how these workflows support designs according to ASME BPVC VIII, EN 13445, and PD 5500.

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1-YEAR ACCESS

7 MODULES

9.5 PDH

9.5 HOURS

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WHAT YOU'LL LEARN

This learning path gives engineers a structured introduction to pressure-vessel and heat-exchanger design using PV Elite and CodeCalc. It is designed for engineers who are starting with PV Elite, moving from another software package, or reviewing pressure-vessel calculations produced in PV Elite.

The seven-course learning path starts with the PV Elite and CodeCalc user interfaces and the design of a simple pressure vessel. It then covers vertical and horizontal vessels, heat exchangers, nozzles, openings, flanges, tubesheets, saddles, lugs, legs, jacketed vessels, load input, and output reporting.

The learning path combines video lectures, quizzes, and structured exercises. Participants can attempt the exercises before following the recorded worked solutions for designs using ASME BPVC VIII, EN 13445, and PD 5500.

SKILLS YOU'LL GAIN

- ✓ Navigate the PV Elite and CodeCalc interfaces and configure units and materials
- ✓ Set up and analyse vertical and horizontal pressure-vessel models in PV Elite
- ✓ Create fixed-tubesheet, floating-tubesheet, and U-tube bundle heat-exchanger models
- ✓ Model and evaluate flanges using PV Elite and CodeCalc
- ✓ Design and review nozzles, nozzle pairs, and external nozzle loads
- ✓ Model saddles, lugs, legs, half-pipe jackets, and non-circular vessels
- ✓ Interpret common warnings and customise calculation reports
- ✓ Develop a working pressure-vessel model from initial setup through reporting

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ABOUT THE INSTRUCTOR

Dynaflow Research Group

Dynaflow Research Group is an engineering consultancy specializing in complex piping, mechanical, structural, vibration, and dynamic analysis. Their work focuses on technically demanding industrial problems where calculation quality, code understanding, physical insight, and engineering judgment are critical.

Their courses turn this specialist consulting experience into practical training, helping engineers understand the principles, assumptions, failure mechanisms, and design decisions behind real engineering systems.

WHO THIS COURSE IS FOR

- ✓ Engineers who are starting to use PV Elite for pressure-vessel design and analysis
- ✓ Engineers moving to PV Elite from another pressure-vessel design software package
- ✓ Engineers responsible for reviewing pressure-vessel design calculations produced in PV Elite

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COURSE CONTENT

Module 1 - Introduction to PV Elite & CodeCalc

Learn the core PV Elite and CodeCalc setup workflow and configure the software for pressure-vessel calculations.

- PV Elite interface and features
- Creating a pressure vessel in PV Elite
- CodeCalc interface and features
- Configuration Editor
- Creating and editing units and materials
- Custom unit-file and material exercises

Module 2 - Pressure Vessel Analysis in PV Elite

Follow the main workflow for designing and analysing vertical and horizontal pressure vessels in PV Elite.

- General vessel design and analysis
- Vertical vessel exercise using ASME VIII div 1
- PD 5500 versus ASME VIII-1 projects
- Horizontal vessel exercise using PD5500
- Converting a vessel from one code project to another

Module 3 - Heat Exchangers in PV Elite

Learn how heat exchangers and common tubesheet configurations are created in PV Elite.

- Introduction to heat exchangers
- ASME VIII heat exchangers
- Creating a heat exchanger in PV Elite
- Fixed tubesheet heat exchanger exercise
- Floating tubesheet heat exchanger exercise
- U-tube bundle heat exchanger exercise

Module 4 - Flange Analysis in PV Elite

Apply the flange-analysis options available in PV Elite and CodeCalc.

- Modelling flanges in PV Elite
- Equivalent pressure method for standard flanges
- Flanges in CodeCalc
- PV Elite and CodeCalc flange exercises
- Taylor-Forge analysis
- EN 1591 analysis
- EN flange analysis exercise

Module 5 - Nozzle Analysis Options in PV Elite

Use PV Elite and CodeCalc to evaluate nozzle design and nozzle loads.

- Area replacement rules for nozzles
- Nozzle analysis using WRC guidelines
- Designing nozzles in CodeCalc
- Evaluating external loads in CodeCalc
- Designing nozzles in PV Elite
- Analysing nozzle pairs
- CodeCalc and PV Elite nozzle exercises

Module 6 - Introduction to Saddles, Lugs, Legs, & Jacketed Vessels in PV Elite

Model common vessel-support and jacket configurations in PV Elite.

- Saddles in PV Elite
- Saddled vessel exercise
- Lugs in PV Elite
- Legs in PV Elite
- Half-pipe jackets in PV Elite
- Jacketed vessel exercise

Module 7 - Miscellaneous Features in PV Elite & Reporting

Explore additional PV Elite modelling, visualisation, and reporting features.

- Non-circular vessels in PV Elite
- Weld seams and fatigue
- Miscellaneous utilities
- Visualisation features
- Reporting in PV Elite
- Customising reports exercise
- Common warnings