

Thermodynamic Software



Training



A VLXE course programme:

Advanced Thermodynamic

(Level 2 course)

When/where:

Spring 2016 in Houston, Texas

VLXE Advanced thermodynamic course:

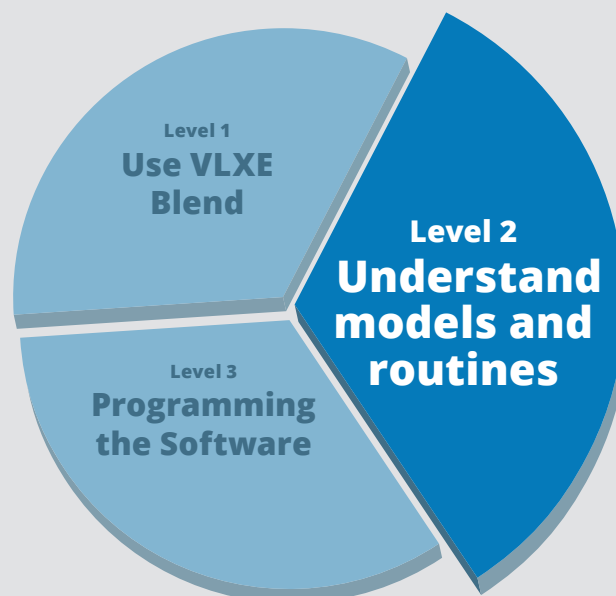
Background

VLXE offers courses on three levels:

Level 1: Use of VLXE Blend

Level 2: (Advanced thermodynamic course)
Deep understanding of the models, equations and routines used in the above software packages.

Level 3: How to implement thermodynamic models and routines (programming course)



The objective of this Level 2 course is to provide attendees with the tools and skills necessary to begin creating computational routines applicable to their research. This is done by providing a deep understanding of the inner working of thermodynamic models. And how the models and common thermodynamic routines are implemented.

Who should attend?

The course should be attended by:

- New graduates looking to get up to speed quickly on process simulation.
- Experienced professionals applying thermodynamic analysis in their careers.
- Graduate students and academic researchers seeking to implement custom equation of state or computational routines.
- Specialists working in the fields of polymers, heavy hydrocarbons or other complex mixtures.
- Users of PVT packages like VLXE Blend, PVTsim or process simulators like Hysis or Aspen that seeks a deeper understanding of how the underlying models and routines work.

Course content

The course will combine lectures and hands-on exercises using VLXE Blend in Excel.

Elements of the syllabus include:

Lecture Material:

- Models and their parameters (PC-SAFT and coPC-SAFT)
- Implementation (EOS, flash, phase boundaries)
- Property calculations (ideal gas and EOS contributions)
- Phase diagrams (critical, binodal and spinodal points, property variations, effects of water)
- Custom modules, (tailored to enrollment)

Examples: Polymers, asphaltenes, association or other complex fluids.

Excel-based Exercises

- Understanding parameter trends in PC-SAFT
- Key information required for process calculations
- Equation of State selection
- Parameter estimation for new components
- Regression of binary interaction parameters (K_{ij}) to literature and process data.
- Gibbs energy plot for a 2 component flash
- Performing a phase stability analysis
- Effect of initial guess on location of cloud point
- Effect of ideal gas term on enthalpy calculated from EOS
- Generation of phase diagram, including VLE, LLE, VLLE and SLE lines
- Tracing process lines in a phase diagram (e.g. flash separations at fixed enthalpy)
- Variation in densities along a phase boundary

The standard course requires 3 days.
Duration can be adjusted to meet customer needs.

This course will be given by Dr. Torben Laursen, owner of VLXE. Dr. Laursen has more than 12 years of experience writing robust thermodynamics software applicable to highly complex systems. His clients include Afton Chemical, Chevron, ConocoPhillips, Dow Chemicals, Exxon-Mobil, Merck, NOVA Chemicals, Sabic, Sasol, Statoil, University of Dortmund, Rice University and others.



Delivery

Spring 2016 in Houston, Texas.

The course fee is 3,000 Euro including lunch and course notes.
Please contact tl@vlxe.com regarding method of payment and costs for
custom courses available at your facility.

Registration including payment must be completed two weeks before course start. Full refund of course costs will be given for cancellation two weeks prior to the course start date.

Contact information:

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