

**ACFDA, North American Agency of CHAM Ltd.
PHOENICS-2022 CFD Software Training Course Program**

Day 1 (6 hours)

Morning Session 11:00-14:00: ACFDA/CHAM, Starting with PHOENICS-VR

11:00-11:15 ACFDA/CHAM Services/Products: www.acfda.org, <https://www.cham.co.uk/>

11:15-12:00 PHOENICS Installation, Introduction to PHOENICS 2022 (Lecture 1.1):

https://www.cham.co.uk/phoenics/d_polis/d_docs/tr110/tr110pc.pdf ,

https://www.cham.co.uk/phoenics/d_polis/d_lecs/general/phoeintr.htm

12:00-12:15 Coffee Break

12:15-13:00 Introduction to VR Editor and Viewer (Lecture 1.2)

https://www.cham.co.uk/phoenics/d_polis/d_docs/tr324/tr324.htm

13:00-14:00 Workshops: Technical Report TR324, Simple Examples:

https://www.cham.co.uk/phoenics/d_polis/d_docs/tr324/tr324.htm

14:00-14:30 Lunch

Afternoon Session 14:30-17:30: PHOENICS Basics

14:30-15:00 Introduction to PIL, Mathematical Basis of PHOENICS (Lectures 1.3, 2.1):

https://www.cham.co.uk/phoenics/d_polis/d_lecs/general/pilintro.htm,

https://www.cham.co.uk/phoenics/d_polis/d_lecs/general/maths.htm

15:00-16:00 Boundary Conditions (Lecture 2.2), Object Types and Attributes (TR326)

https://www.cham.co.uk/phoenics/d_polis/d_lecs/general/bcond.htm,

https://www.cham.co.uk/phoenics/d_polis/d_docs/tr326/tr326top.htm

16:00-16:15 Coffee Break

16:15-17:00 Solution Techniques, Convergence Control (Lectures 2.3 and 2.4)

https://www.cham.co.uk/phoenics/d_polis/d_lecs/numerics/solution.htm,

https://www.cham.co.uk/phoenics/d_polis/d_lecs/numerics/converge.htm,

17:00-17:30 Turbulence Models (Lecture 3.1)

https://www.cham.co.uk/phoenics/d_polis/d_lecs/general/turb.htm

Day 2 (6 hours)

Morning Session 11:00-14:00: Advanced Physical Models and Complex Geometry

11:00-12:00 Adding Extra Variables: Tutorial 11 (Introducing Contaminants)

http://www.cham.co.uk/phoenics/d_polis/d_wkshp/wscontam.htm

12:00-12:15 Coffee Break

12:15-13:30 Modeling Two-phase Flows (Lecture 10, Tutorial)

https://www.cham.co.uk/phoenics/d_polis/d_lecs/ipsa/ipsa.htm,

http://www.cham.co.uk/phoenics/d_polis/d_wkshp/ipsa/ws2phs.htm

13:30-14:00 Complex Geometry: CAD-to-PHOENICS (STL, DXF), PARSOL

https://www.cham.co.uk/phoenics/d_polis/d_docs/tr326/cadimp1.htm,

https://www.cham.co.uk/phoenics/d_polis/d_docs/parsol/parsol.htm

14:00-14:30 Lunch

Afternoon Session 14:30-17:30: PHOENICS Customization (In-Form, GROUND, PLANT)

14:30-15:30 Adding Customized Models via Formulas: In-Form Tutorial

http://www.cham.co.uk/phoenics/d_polis/d_wkshp/inform/wsinf1.htm

15:30-16:00 PHOENICS Programmability: GROUND Structure (Lecture 5.1)

https://www.cham.co.uk/phoenics/d_polis/d_lecs/ground/ground1.htm

16:00-16:15 Coffee Break

16:15-17:30 Programming in GROUND with PLANT(Tutorial)

https://www.cham.co.uk/phoenics/d_polis/d_wkshp/wsplant.htm

Day 3 (6 hours)

Morning Session 11:00-14:00: Work on Client Application

- 11:00-12:30** Problem Formulation and CFD Model Selection (Input/Output, CFD Variables, Models, Computational Domain and CFD Objects)
- 12:30-12:45** Coffee Break
- 12:45-14:00** Providing Boundary Conditions and Sources
- 14:00-14:30** Lunch

Afternoon Session 14:30-17:30: Work on Client Application

- 14:30-15:30** Solving Equations and Achieving Convergence
- 15:30-16:00** Post-processing and Analyzing Results
- 16:00-16:15** Coffee Break
- 16:15-17:30** General Questions and Discussion