Advance Software Solutions Centre Pte Ltd
Specializing in Computer Aided Software Applications, Trainings & Consultancy

AFT Impulse Tutorial Training

Duration:

3 Days

9:00 am - 6:00 pm

1 hour lunch break

Min 4 pax to start an onsite privacy training course

Focus:

To provide an immediate experience with basic features of Impulse. It is primarily for people who are interested in starting up with Impulse now but have little or no experience with the Impulse. Tutorials will be started from simple Valve Closure Example because it is the most complete. After this example, select examples that most closely matches your applications. The examples are arranged in order of increasing complexity.

Prerequisites:

- Basic literate in Windows 98 or Win ME or Win2000 or semilar.
- Basic understanding in fluid dynamic, thermodynamic and heat transfer.
- AFT Fathom course or current AFT Fathom user.

Agenda:

INTRODUCTION

I1. Overview of AFT Impulse
I2. Steady-State Hydraulic Solution Methodology
I3. Waterhammer Solution Methodology
I4. Demonstration Problem - Surge at Valve Closure
I5. AFT Impulse Hands-On Modeling
I6. Pipe and Junction Details
I7. The Five Primary Windows
I8. Time and Event Transients
I9. Steady and Transient Special Conditions
I10. Pump Transients
I11. Pipe Sectioning and Transient Control
I12. Special Topics Including Troubleshooting
I13. Surge Suppression

I14. Calculating Unbalanced Forces

I15. Using the Scenario Manager

I16. Customizing AFT Impulse and Using Databases

I17. More AFT Impulse Hands-On Modeling

Selective Hand On Tutorials:

1) Valve Closure: In-depth discussion of model building in AFT Impulse. Solves a simple valve closure problem.

2) Ship to Shore Transfer System with Cavitation: Three valve closure rates on a fluid transfer system are evaluated with respect to maximum pressure. Cavitation occurs in two cases.

3) Tank Farm – Use of infinite Pipes: A long supply pipeline flows into a gasoline tank farm. The transient occurs when flow is switched from one storage tank to another. Two scenarios compare the results with and without an infinite pipe boundary, and also compares the rum times.

4) Pump Trip with Check Valve: A system pumping water uphill loses power to the pump. This model predicts the system response and pump speed decay.

5) Pump Trip with Accumulator: Same system as Pump Trip With Check Valve, except an accumulator is used to minimize the downsurge due to the pump trip to keep all pressures above atmospheric.

6) Pump Startup with Event Transients: Transients from different pump startup scenarios are evaluated. A valve opening transient is initiated based on system events.

7) Pump Trip with Backflow – Four quadrant Modeling: Two pumps supplying cooling towers lose power. Valves close, but not before the pumps start to spin backwards. Four-quadrant pump modeling is used to evaluate the pump reaction and system transients.

8) Pump with Variable Speed Flow Control: A pump with a variable speed drive for flow control supplies water to two heat exchangers. The flow to one of the exchangers is turned off, and the controlled pump flow rate is reduced by half over five seconds.

9) Positive Displacement Pump: Models of a simplex, duplex and triplex positive displacement pump

10) Valve Closure With Pipe Forces Water: Determines the transient forces that occur in a gravity drain system that transfers water from one tank to another through a valve in the connecting pipeline.