FINANCIAL RISK MANAGEMENT IN PROCESS OPERATIONS SCHEDULING AND PROJECT INVESTMENT PLANNING

In the last decade, design under uncertainty and more recently, planning operations under uncertain conditions started to become mainstream engineering practice. The reason relies on the fact that the increased competitiveness of industry forces better planning. The advances in computational speed and methods, as well as the introduction of commercial software, allows these techniques to be now implemented in practice.

This is short course is intended to introduce a few concepts

- Modeling of uncertainty in process operations and investment planning
- Risk Assessment.
- Risk Management

The course uses a series of examples to illustrate the techniques and the results. Although design under uncertainty is already more than a decade old, risk management is a few years old. Thus, the course relies mostly on recent articles and unpublished material.

The instructor is a Professor at the Chemical Engineering Department of the University of Oklahoma. He holds a Ph.D. from the California Institute of Technology, has been a Professor in Argentina and has performed research and teaching at UCLA, USA. His industrial experience includes a six-year project to build a heavy water plant in Argentina, several consulting work and a three years position at Simulation Sciences (SIMSCI). He has several publications in the area of risk management.

Course Duration: Two days

1. CAPACITY INVESTMENT PLANNING (PROJECTS IN GENERAL) INCLUDING SUPPLY CHAINS.
   What process to build, when to build, what capacity to build, etc.

2. PLANNING OF CLEANING IN HEAT EXCHANGER NETWORKS.
   Which exchanger to clean and when. Constrained by number of cleaning teams, resources, etc.

3. BATCH PROCESSES AND SUPPLY CHAIN OPERATIONS.
   Product transport and distribution. Utilization of warehouses and distribution centers, etc.

4. REFINERY OPERATIONS SCHEDULING AND PRODUCTION PLANNING.
   Applications to production planning, crude and product blending operations, etc. Like PIMS, but nonlinear.

The course may include hands on or demonstration exercises using excel, and other commercial software (@Risk and Crystal Ball and GAMS).

This course is more financial risk oriented than the other course offered (Process design and planning under uncertainty), which is more descriptive of the potential of modeling under uncertainty.