Course Outline: Risk Analysis in Oracle Primavera

Course Code: 501

Duration: 3 Days (21 hours)

Course Overview

This course provides an in-depth, practical, and systematic introduction to **quantitative project risk analysis using Oracle Primavera Risk Analysis (Release 8.7)**. It is designed for project professionals who need to **evaluate, model, and manage uncertainty in complex project environments**, particularly where schedule and cost risks can significantly affect outcomes.

Participants will gain a **strong conceptual foundation** in risk management principles while also developing **hands-on technical skills** to apply these concepts using Primavera tools. The course integrates **theoretical knowledge with real-world application**, ensuring learners can translate risk concepts into actionable project insights.

Target Audience

This course is suitable for:

- Project managers and planners
- Risk analysts and consultants
- Scheduling engineers
- Construction, engineering, and infrastructure professionals
- Anyone involved in **project planning, forecasting, or portfolio management**

Prerequisites (Recommended)

- Basic understanding of project scheduling concepts (e.g., critical path method)
- Familiarity with Primavera P6 or similar scheduling tools (helpful but not mandatory)

Lesson 1: Introduction to Primavera & Risk Analysis

- Overview of Oracle Primavera ecosystem
- Primavera solutions (P6, Aconex, Unifier, etc.)
- Fundamentals of risk analysis
- Role of risk in project management
- Capabilities of Primavera Risk Analysis

Lesson 2: Overview & Navigation

- Quantitative risk analysis concepts
- Risk Analysis methodology (PMBOK-based process):
    a. Schedule Review
    b. Pre-Analysis Check
    c. Build Risk Model
    d. Analyze and Review
    e. Mitigate and Report
- Software interface navigation:
    a. Workspace, views, and sheets
    b. Menus and icons

Lesson 3: Understanding Risk

- Types of risk:
    - Uncertainty
    - Risk events
- Risk impact on:
    - Schedule
    - Cost
    - Critical path
- Key concepts:
    - Skewed distributions
    - Cumulative risk
- Types of project schedules:
    - Realistic, aggressive, cautious, scale-to-fit

Lesson 4: Schedule Review

- Importance of schedule validation
- Schedule Check Report:
  - Constraints
  - Open-ended tasks
  - Broken logic
  - Lags and dependencies
- Best practices for improving schedule integrity

Lesson 5: Pre-Analysis Check

- Purpose and benefits
- Duration Quick Risk technique
- Running initial risk simulations
- Output tools:
  - **Distribution Graph** (probability outcomes)
  - **Tornado Graph** (project drivers)
- Identifying high-impact activities

Lesson 6: Applying Duration Uncertainty

- Methods to apply uncertainty:
  - Task Details
  - Gantt Chart columns
  - Templated Quick Risk
- Creating risk templates (VH, H, M, L, VL)
- Assigning uncertainty across tasks
- Template reuse and optimization

Lesson 7: Task Existence / Probability

- Modeling single-event risks
- Assigning existence probability
- Linking risk events to activities

- Analyzing probabilistic task occurrence

Lesson 8: Basic Probabilistic Branching

- Modeling mutually exclusive risk outcomes
- Configuring branching logic
- Assigning probabilities across branches
- Evaluating impact on schedule

Lesson 9: Advanced Probabilistic Branching

- Complex branching structures
- Using milestones and option paths
- Assigning weighted probabilities
- Scenario-based risk modeling

Lesson 10: Risk Register

- Creating and managing risk register
- Risk identification and documentation
- Mapping risks to activities
- Mitigation strategies
- Pre- vs post-mitigated plans
- Risk scoring and reporting

Lesson 11: Correlation

- Understanding correlation in risk modeling
- Positive and negative relationships between tasks
- Scatter plots and S-curves
- Central Limit Theorem impact
- Using correlation to improve realism

Lesson 12: Resource & Cost Uncertainty

- Types of cost uncertainty:

  - Fixed cost
  - Time-dependent cost
- Resource uncertainty:
  - Rates
  - Allocation
- Applying uncertainty distributions
- Modeling financial risk

Lesson 13: Analyze & Mitigate

- Running full risk analysis
- Using advanced tools:
  - Distribution Analyzer
  - Tornado Graph
- Identifying mitigation priorities
- Building **P-Schedules (e.g., P80)**
- Comparing scenarios and reporting results

Appendix: Working with Primavera

- Import/export project data
- Defining data fields
- Managing project structures (WBS)

Learning Outcomes

By the end of the course, learners will be able to:

- Perform quantitative risk analysis on project schedules
- Model uncertainty and risk events accurately
- Identify key project risk drivers
- Apply mitigation strategies effectively
- Analyze cost and schedule risks using simulation tools