

AVEVA Predictive Analytics

COURSE CONTENT

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About Multisoft

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About Course

AVEVA Predictive Analytics Training provides practical knowledge of using predictive analytics for industrial asset monitoring and maintenance. The course covers operational data preparation, asset modeling, predictive model configuration, model training and validation, anomaly detection, diagnostics, alerts, and model performance monitoring.

Participants learn to compare expected and actual equipment behaviour, identify developing abnormalities, investigate asset conditions, and use predictive insights to support proactive maintenance and reliability decisions. Practical exercises and industrial scenarios expose participants to predictive analytics workflows used across process- and asset-intensive industries.

Module 1: Introduction to AVEVA Predictive Analytics

- ✓ Overview of industrial predictive analytics
- ✓ Predictive analytics in asset performance management
- ✓ Reactive, preventive, condition-based, and predictive maintenance
- ✓ Role of operational data in equipment health monitoring
- ✓ Understanding normal and abnormal asset behavior
- ✓ Predictive analytics workflow
- ✓ Typical industrial applications
- ✓ Overview of the AVEVA predictive analytics environment

Module 2: Predictive Maintenance and Asset Performance Concepts

- ✓ Asset reliability fundamentals
- ✓ Critical asset identification
- ✓ Asset health and performance indicators
- ✓ Failure modes and degradation patterns
- ✓ Leading and lagging indicators
- ✓ Condition monitoring concepts
- ✓ Early warning principles
- ✓ Relationship between predictive analytics and maintenance decisions
- ✓ From detected anomaly to maintenance action

Module 3: AVEVA Predictive Analytics Architecture and Components

- ✓ Solution architecture overview
- ✓ Major system components
- ✓ Analytics engine concepts
- ✓ Client and server components
- ✓ Data flow through the analytics environment
- ✓ Asset hierarchy concepts
- ✓ Models, tags, variables, and observations
- ✓ Historical and real-time operational information
- ✓ User roles and operational workflow
- ✓ Understanding deployment considerations

Module 4: Data Sources, Connectivity, and Industrial Data Preparation

- ✓ Understanding industrial time-series data
- ✓ Identifying relevant process and equipment variables
- ✓ Data source considerations
- ✓ Historical data requirements
- ✓ Selecting appropriate tags and measurements
- ✓ Data quality assessment
- ✓ Missing and invalid data considerations
- ✓ Detecting outliers and abnormal measurements
- ✓ Data range and operating-condition considerations
- ✓ Preparing representative operating data

- ✓ Selecting training periods
- ✓ Data synchronization considerations
- ✓ Establishing reliable datasets for analytics

Module 5: Asset and Equipment Modeling

- ✓ Understanding asset-based predictive models
- ✓ Selecting assets for monitoring
- ✓ Defining equipment boundaries
- ✓ Identifying critical operating parameters
- ✓ Input and output variable selection
- ✓ Process-variable relationships
- ✓ Understanding dependent and independent variables
- ✓ Creating equipment-specific models
- ✓ Establishing normal operating behavior
- ✓ Modeling different operating conditions
- ✓ Model organization and naming practices
- ✓ Reusable model considerations

Module 6: Predictive Model Creation and Configuration

- ✓ Predictive model concepts
- ✓ Creating and configuring models
- ✓ Selecting appropriate model variables
- ✓ Configuring model parameters
- ✓ Establishing expected equipment behavior
- ✓ Working with historical operating periods

- ✓ Defining appropriate training datasets
- ✓ Model sensitivity considerations
- ✓ Expected versus actual values
- ✓ Residual and deviation concepts
- ✓ Configuring thresholds
- ✓ Model configuration review
- ✓ Initial model testing

Module 7: Model Training, Validation, and Performance Evaluation

- ✓ Model training workflow
- ✓ Selecting representative operating history
- ✓ Training models using normal operating conditions
- ✓ Evaluating model behavior
- ✓ Understanding predicted versus observed behavior
- ✓ Reviewing prediction errors
- ✓ Identifying poor model performance
- ✓ Validation using operational datasets
- ✓ Model accuracy considerations
- ✓ Avoiding unsuitable training periods
- ✓ Retraining considerations
- ✓ Model acceptance and deployment readiness

Module 8: Anomaly Detection and Early Warning Analysis

- ✓ Fundamentals of anomaly detection
- ✓ Identifying deviations from expected behavior
- ✓ Understanding residual behavior
- ✓ Detecting developing equipment abnormalities
- ✓ Individual versus correlated parameter deviations
- ✓ Early warning indicators
- ✓ Persistent versus temporary anomalies
- ✓ Operating-condition-related deviations
- ✓ Evaluating anomaly significance
- ✓ Identifying abnormal patterns
- ✓ Prioritizing emerging asset issues
- ✓ Avoiding unnecessary alerts
- ✓ Using predictive indications for proactive investigation

Module 9: Diagnostics, Alerts, and Fault Investigation

- ✓ Understanding diagnostic workflows
- ✓ Configuring alert conditions
- ✓ Alert threshold concepts
- ✓ Severity and prioritization
- ✓ Reviewing model-generated indications
- ✓ Investigating abnormal equipment behavior
- ✓ Comparing actual and expected values
- ✓ Correlating multiple process variables
- ✓ Identifying possible contributing factors

- ✓ Distinguishing equipment faults from process changes
- ✓ Documenting observations
- ✓ Alert acknowledgement and review
- ✓ Supporting root-cause investigation
- ✓ Escalating actionable findings to maintenance teams

Module 10: Model Monitoring, Tuning, and Lifecycle Management

- ✓ Monitoring deployed predictive models
- ✓ Reviewing ongoing model performance
- ✓ Identifying model drift
- ✓ Understanding changes in operating conditions
- ✓ Threshold optimization
- ✓ Sensitivity adjustment
- ✓ Managing false positives
- ✓ Identifying missed or weak indications
- ✓ Model tuning techniques
- ✓ Updating model inputs
- ✓ Retraining predictive models
- ✓ Managing equipment modifications
- ✓ Model version and change considerations
- ✓ Periodic model health review
- ✓ Maintaining sustainable predictive analytics programs

Module 11: Visualization, Reporting, and Operational Workflows

- ✓ Reviewing asset health information
- ✓ Trend analysis
- ✓ Actual versus predicted value visualization
- ✓ Interpreting deviations and patterns
- ✓ Reviewing active alerts
- ✓ Asset-level analysis
- ✓ Prioritizing assets requiring attention
- ✓ Communicating predictive findings
- ✓ Creating actionable maintenance information
- ✓ Reporting abnormal asset conditions
- ✓ Collaboration between operations, reliability, and maintenance teams
- ✓ Supporting maintenance planning with predictive insights

Module 12: Industrial Use Cases and End-to-End Practical Implementation

- ✓ Selecting a suitable industrial asset
- ✓ Identifying relevant operating parameters
- ✓ Preparing historical operating data
- ✓ Establishing normal operating conditions
- ✓ Creating an asset model
- ✓ Configuring predictive variables
- ✓ Training and validating the model
- ✓ Establishing monitoring thresholds

- ✓ Simulating or reviewing abnormal behavior
- ✓ Detecting an emerging anomaly
- ✓ Investigating related variables
- ✓ Interpreting predictive indications
- ✓ Creating an actionable diagnostic observation
- ✓ Reviewing model performance
- ✓ Refining model configuration
- ✓ End-to-end predictive maintenance workflow