

Data Analysis Techniques

17 – 21 March 2019

Introduction:

Business Process Analysis and Modelling is an important part of Business Process Redesign as well as other business process improvement initiatives such as reengineering, systems development, quality management and continuous process improvement.

In this course, the participants will acquire the knowledge and skills to analyze and model business processes at both the organization level and at the detailed workflow level.

This course will provide a step-by-step approach to effectively analyze processes to ensure that business process models accurately reflect reality and includes stakeholder requirements.

The participants will learn the Business Process Modelling Notation (BPMN). This is a widely-used, open modelling standard that combines business-friendliness with the precision required to effectively implement and automate business processes. It is easy to understand and can be applied to all aspects of business process innovation.

The course will cover the following subjects:

- Understand business processes and their components
- Apply process analysis concepts and techniques
- Define processes using Business Process Modelling Notation (BPMN)
- Develop business process architecture
- Specify measures of business process performance
- Diagnose the health of a business process

After completing this course, the attendees will be able to:

- Understand business processes and their components
- Apply process analysis concepts and techniques
- Define processes using Business Process Modelling Notation (BPMN)
- Develop business process architecture
- Specify measures of business process performance
- Diagnose the health of a business process

Who Should Attend?

Business managers, business process analysts, process owners, business analyst, systems analysts, Information Technology Professionals, BPM Project Leaders, BPM Project Team and Quality Specialists.

Outlines:

DAY 1: Introduction and Key concepts

- Course opening
- Overview about the course and its objectives
- Pre-assessment exam
- Definition and history of data analysis
- Difference between data analysis and data analytics
- Current technology and increasing challenges
- The impact of vast volumes of available data
- Qualitative and quantitative data types
 - Discussion point: How you see data analysis
- Definition of Data mining
- Definition of data warehousing
- Application of data mining and data warehousing
 - Discussion point: how to use data mining in your organization

DAY 2: Fundamental Statistics, Data Comparison and Histogram

- Basic definitions and calculation?
 - Mean
 - Average
 - Median
 - Mode
 - Variance
 - Standard Deviation
 - Group Exercise: SD Calculation
- Data comparison
- Correlation analysis
- Auto-correlation function
- multivariate and non-linear correlation
 - Group Exercise: correlation Analysis
- Histograms and Pareto analysis
- Cumulative percentage analysis
- The law of diminishing return
- Percentile analysis
 - Group Exercise: Pareto Diagram

DAY 3: Forecasting and regression Analysis

- Forecasting methods and models
- Time series analysis
- Linear regression
 - Group Exercise: Linear regression
- Establishing trends and business cycles
- Selecting independent variables for predictive models
- The Fourier transform
- periodic and a-periodic data
 - Group Exercise: Fourier transform
- Inverse transformation
- Practical implications of sample rate
- Dynamic range and amplitude resolution
 - Group Exercise: Inverse transformation
- What is regression analysis?
- Application of regression analysis
- Liner vs. non-liner analysis
- Linear and non-linear regression
 - Group Exercise: regression analysis

DAY 4: Fitting and Analysis of Variance (ANOVA)

- Definition of best fit
- What minimum variance
- maximum likelihood
 - Group Exercise: minimum variance and maximum likelihood
- least squares fits
- Curve fitting theory
- Exponential and polynomial curve fits
 - Group Exercise: Exponential and polynomial curve
- predictive methods
- Probability theory
- properties of distributions
- expected values
- setting confidence limits
- What is ANOVA analysis
- Types of ANOVA analysis
- Calculation of ANOVA analysis
 - Group Exercise: ANOVA analysis

DAY 5: Pivot tables and sensitivity Analysis

- Overview of Pivot tables
- Benefit of Pivot tables
- What is sensitivity analysis
- Value of sensitivity analysis
- sensitivity analysis Calculation
 - Group Exercise: sensitivity analysis?
- Course wrap up
- Post-assessment exam
- Course closure

Training Method:

- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- PowerPoint presentation, LCD and flip chart
- Self-test and group activities
- Each participant receives a binder containing a copy of the presentation slides and handouts

Program Support:

This program is supported by interactive discussions and case studies to highlight the techniques available to the participants.