



Digital Transformation and Innovation

## **Data-Driven Decision Making in Engineering for Managers**

## Course Introduction

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**This intensive 5-day course** is tailored for engineering managers and senior professionals who want to leverage data analytics to enhance decision-making processes in engineering contexts. The course covers fundamental concepts of data analysis, advanced analytical techniques, data visualization, predictive modeling, and the implementation of data-driven strategies in engineering operations. Participants will learn how to effectively use data to inform strategic decisions, optimize processes, and drive innovation in engineering projects and operations.

## Target Audience

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1. Engineering Managers & Directors – Leading teams and making strategic decisions.
2. Project & Operations Managers – Optimizing processes using data insights.
3. Quality & Process Improvement Leaders – Applying data for performance enhancement.
4. R&D and Product Development Managers – Using data to drive innovation.
5. Supply Chain & Manufacturing Managers – Enhancing efficiency and reducing risks with data.

## Learning Objectives

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- Understand the importance and potential of data-driven decision making in engineering
- Develop skills in data collection, analysis, and interpretation for engineering applications
- Learn advanced analytical techniques and their application in engineering contexts
- Master data visualization techniques for effective communication of insights
- Understand predictive modeling and its use in engineering decision making

- Learn how to implement data-driven strategies in engineering operations
- Develop skills in leading data-driven culture change in engineering organizations

## Course Outline

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### • 01 DAY ONE

#### **Foundations of Data-Driven Decision Making in Engineering**

- Understand the role of data in engineering decision making
- Learn the fundamentals of data analysis and statistics for engineering
- Recognize the potential and limitations of data-driven approaches
- Introduction to Data-Driven Decision Making in Engineering
- The Data-Driven Decision Making Process
- Basic Statistical Concepts for Engineering Managers
- Data Collection and Quality Assurance in Engineering Contexts
- Ethical Considerations in Data-Driven Decision Making

### • 02 DAY TWO

#### **Advanced Data Analysis Techniques for Engineering**

- Learn advanced data analysis techniques relevant to engineering
- Understand how to apply these techniques to real-world engineering problems
- Develop skills in interpreting complex analytical results
- Exploratory Data Analysis in Engineering
- Regression Analysis and Its Applications in Engineering
- Time Series Analysis for Engineering Data
- Machine Learning Techniques for Engineering Applications
- Case Studies: Applying Advanced Analytics in Engineering Decisions

### • 03 DAY THREE

#### **Data Visualization and Communication for Engineering Managers**

- Master data visualization techniques for engineering data
- Learn how to effectively communicate data insights to various stakeholders
- Understand the role of data storytelling in engineering contexts
- Principles of Effective Data Visualization
- Tools and Techniques for Engineering Data Visualization
- Creating Dashboards for Engineering KPIs
- Data Storytelling for Engineering Managers
- Communicating Technical Data to Non-Technical Audiences
- Hands-on Workshop: Creating Impactful Engineering Data Visualizations

## • 04 DAY FOUR

### **Predictive Modeling and Simulation in Engineering**

- Understand the principles of predictive modeling in engineering
- Learn how to use simulations for decision support in engineering projects
- Develop skills in interpreting and applying predictive models
- Introduction to Predictive Modeling in Engineering
- Types of Predictive Models Relevant to Engineering
- Simulation Techniques for Engineering Decision Support
- Model Validation and Performance Evaluation
- Integrating Predictive Models into Engineering Processes
- Case Studies: Successful Applications of Predictive Modeling in Engineering

## • 05 DAY FIVE

### **Implementing Data-Driven Strategies in Engineering Operations**

- Learn how to develop and implement data-driven strategies in engineering operations
- Understand change management principles for fostering a data-driven culture
- Develop an action plan for implementing data-driven decision making in your organization
- Developing a Data Strategy for Engineering Operations
- Infrastructure and Tools for Data-Driven Engineering
- Building and Leading Data-Driven Engineering Teams
- Overcoming Barriers to Data-Driven Decision Making

- Measuring the Impact of Data-Driven Decisions in Engineering
- Future Trends in Data Analytics for Engineering
- Course Review and Action Planning Workshop

## Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
May 26, 2025	May 30, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Sept. 29, 2025	Oct. 3, 2025	5 days	5950.00 \$	Switzerland - Zurich
Nov. 16, 2025	Nov. 20, 2025	5 days	4250.00 \$	KSA - Riyadh