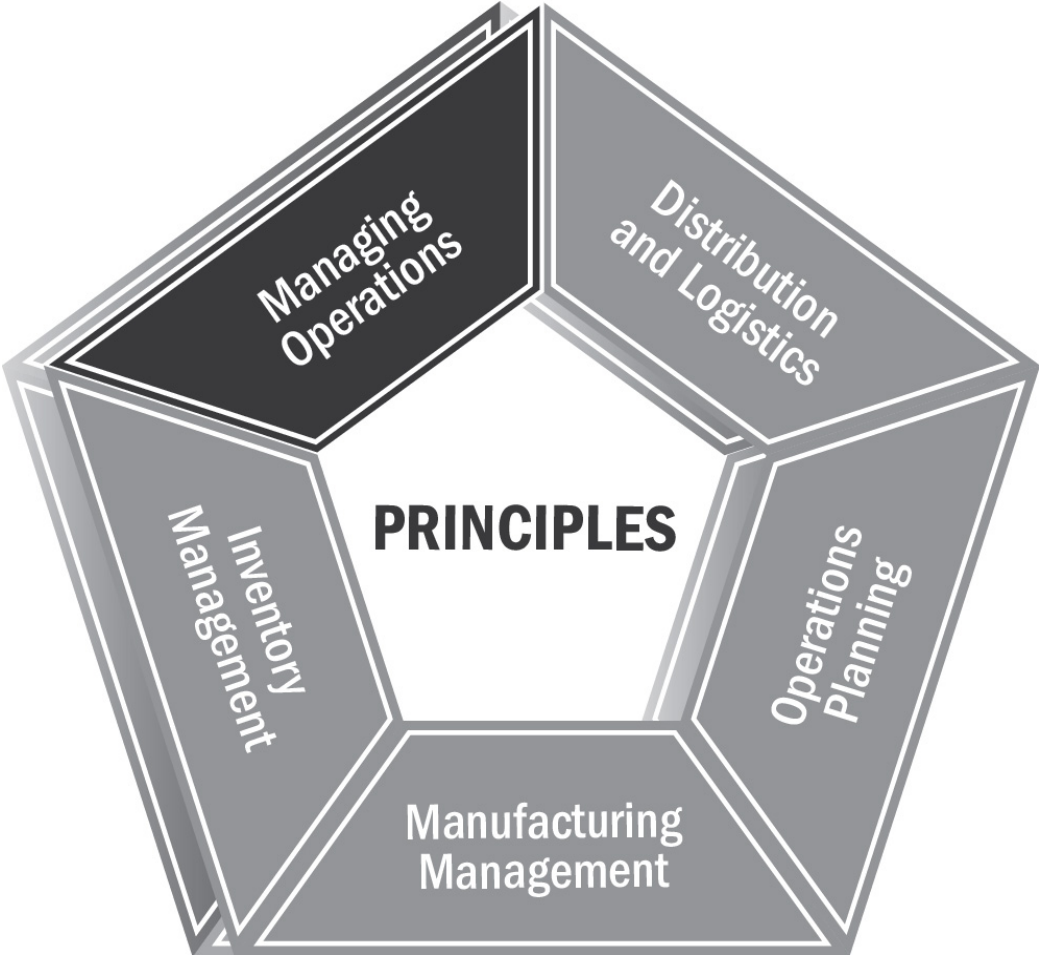


# Table of Contents



## Instructor Guide

This page left intentionally blank

---

## Brief Table of Contents

Session 1 .....	Operations Management Foundations
Session 2 .....	Processes and Operations
Session 3 .....	Project Management
Session 4 .....	Product Design and Development
Session 5 .....	Process Design Strategies
Session 6 .....	Mid-Term Examination
Session 7 .....	Total Quality Management
Session 8 .....	Statistical Quality Control
Session 9 .....	Process Improvement and Optimization
Session 10 .....	Organizational Management and Performance
Session 11 .....	Final Exam

# Table of Contents

## Session 1: Operations Management Foundations

Principles of Operations Management – Overview.....	1-3
Principles of Managing Operations – Course Overview.....	1-5
Operations Management Foundations Overview.....	1-7
Session Learning Objectives .....	1-9
What is Operations Management .....	1-11
Why Study Operations Management .....	1-13
What Business Trends are Impacting Operations Management .....	1-15
What Do Operations Managers Do .....	1-23
Career Opportunities in Operations Management.....	1-25
What Value-Added Activities are Performed.....	1-27
How does Operations Management Fit into the Organization .....	1-29
What is the Scope of Operations Management Functions.....	1-33
Operations Management – Changing Perspectives .....	1-39
Operations Management and Business Strategy .....	1-41
Contributing Role of Operations Management to Strategy .....	1-43
Ten Strategic Operations Management Decisions .....	1-47
Managing Operations Concepts Self-Assessment .....	1-51
Managing Operations Terms Matching Exercise .....	1-53
Plot a Process’s Output Quality .....	1-55
Populate a Gantt Chart.....	1-57
Review, Terms, Discussion Questions, Exercises .....	1-61
Terms Check.....	1-63
Performance Check – Answers and Test Documents .....	1-68
Discussion Questions .....	1-71
Suggested Additional Readings .....	1-75

---

## Session 2: Processes and Operations

Processes and Operations – Overview .....	2-3
Session Learning Objectives.....	2-5
Processes and Operations – Overview .....	2-7
Defining Processes.....	2-11
Process Diagram .....	2-13
Products Versus Services .....	2-15
Defining Operations.....	2-17
Process Operations Mapping.....	2-21
Defining the Customer .....	2-25
Customers in the Supply Chain .....	2-27
Content of Customer Wants and Needs .....	2-29
Scope of Process Management.....	2-35
The Organization as a Network of Functional Processes.....	2-37
The Process-Driven Organization .....	2-39
Team-Based Process Networking.....	2-41
Strategic Impact of Processes and Operations .....	2-43
The Four “Vs” of Processes .....	2-45
The Four Processes “Vs” – Typology .....	2-47
Review, Terms, Discussion Questions, Exercises.....	2-51
Terms Check .....	2-53
Performance Check – Answers and Test Documents.....	2-58
Discussion Questions.....	2-61
Case Study .....	2-65
Suggested Additional Readings.....	2-69

## Session 3: Project Management

Project Management – Overview .....	3-3
Session Learning Objectives .....	3-5
Defining Project Management .....	3-7
Components of a Project .....	3-9
Four Project Objectives.....	3-11
Project Goals Dynamics .....	3-13
Dynamics of Managing Ongoing Operations and Project Management.....	3-15
Project Management System .....	3-17
Project Management Phases and Life Cycle .....	3-21
Project Positioning Phase.....	3-23
Initiation and Planning Phase .....	3-25
Project Human Resource Management, Roles, and Responsibilities .....	3-27
Project Schedule .....	3-29
Execution and Control Phase .....	3-33
Controlling the Project .....	3-35
Completion Phase.....	3-37
Gantt Chart .....	3-39
Planning Projects with CPM/PERT.....	3-41
Basic AON CPM Networking Example .....	3-43
Review, Terms, Discussion Questions, Exercises .....	3-51
Terms Check.....	3-53
Performance Check – Answers and Test Documents .....	3-56
Discussion Questions .....	3-59
Case Study.....	3-63
Suggested Additional Readings .....	3-67

---

## Session 4: Product Design and Development

Product Design and Development – Overview .....	4-3
Session Learning Objectives.....	4-5
Need for New Products .....	4-7
Drivers of New Product Development .....	4-9
Product Development Principles .....	4-11
Design Organizational Structures.....	4-13
Changing Paradigms in Design Development .....	4-15
Linking Designs and Processes.....	4-17
Product Design Process Flow .....	4-19
Break-Even Analysis .....	4-25
Make or Buy Analysis .....	4-29
What is Quality Functional Deployment (QFD)?.....	4-31
House of Quality – Overview .....	4-33
House of Quality – Example.....	4-35
The Four Houses of Quality.....	4-39
Product Design Techniques .....	4-41
Designing Services - Characteristics .....	4-45
Service Design Process Flow .....	4-47
Review, Terms, Discussion Questions, Exercises.....	4-51
Terms Check .....	4-53
Performance Check – Answers and Test Documents.....	4-58
Discussion Questions.....	4-61
Case Study .....	4-65
Suggested Additional Readings.....	4-69

## Session 5: Process Design Strategies

Process Design Strategies – Overview .....	5-3
Session Learning Objectives .....	5-5
What is Process Design ?.....	5-7
Factors Influencing Process Design .....	5-9
Process Choices .....	5-13
Transformation Process Type.....	5-15
Process Design – Core Design Structure .....	5-17
Cost Equalization Point (CEP).....	5-19
CEP Graphic .....	5-21
Defining Process Layout Design .....	5-23
Factors Driving Process Layout Design .....	5-25
Process Layout Options .....	5-27
Process Choice and Layout Positioning Matrix .....	5-29
Assessing Process and Resource Layout Choices .....	5-31
Hybrid Process Layouts .....	5-33
Production Cells – Revisited .....	5-35
Maximizing Process Layout Efficiency .....	5-37
Assembly Line Example and Line Balancing.....	5-41
Review, Terms, Discussion Questions, Exercises .....	5-45
Terms Check.....	5-47
Performance Check – Answers and Test Documents .....	5-52
Discussion Questions .....	5-55
Case Study.....	5-59
Suggested Additional Readings .....	5-63

## Session 6: Mid-Term Exam



---

## Session 7: Total Quality Management

Total Quality Management – Overview .....	7-3
Session Learning Objectives.....	7-5
Defining Quality .....	7-7
Why Has Quality Become So Important? .....	7-9
Dimensions of Quality .....	7-11
Cost of Quality.....	7-15
Hidden Costs of Poor Quality .....	7-19
Cost of Quality Graphs .....	7-21
Total Quality Management – Definition .....	7-23
Quality Thought Leaders .....	7-25
TQM and Strategy.....	7-27
TQM Program.....	7-29
Quality Control .....	7-31
Continuous Improvement .....	7-35
Process Management .....	7-37
Design for Quality .....	7-39
Employee Involvement.....	7-41
Lean Processes .....	7-43
TQM Tool Kit.....	7-45
Review, Terms, Discussion Questions, Exercises.....	7-47
Terms Check .....	7-49
Performance Check – Answers and Test Documents.....	7-56
Discussion Questions.....	7-59
Case Study .....	7-63
Suggested Additional Readings.....	7-67

## Session 8: Statistical Quality Control

Statistical Quality Control – Overview.....	8-3
Session Learning Objectives .....	8-5
Defining Statistical Quality Control (SQC). .....	8-7
The Statistical Quality Control System.....	8-9
Three Stages of Statistical Quality Control.....	8-13
Types of Quality Problems .....	8-15
Exploring Quality Problems.....	8-17
Understanding Process Variance.....	8-19
Sources of Variation in Processes .....	8-21
Patterns of Variability – Data Collection.....	8-23
Patterns of Variability.....	8-25
Process Capability.....	8-27
Process Capability Ratio and Index .....	8-29
Defining Statistical Process Control (SPC).....	8-33
Defining Inspection.....	8-35
Inspection Basics.....	8-37
Sampling Techniques .....	8-41
Developing a Sampling Plan .....	8-43
SPC – Control Chart Basics.....	8-45
$\bar{X}$ -Chart - Steps.....	8-47
Creating a $p$ -Chart.....	8-49
Interpreting SPC Charts.....	8-51
Review, Terms, Discussion Questions, Exercises .....	8-53
Terms Check.....	8-55
Performance Check – Answers and Test Documents .....	8-60
Discussion Questions .....	8-63
Case Study.....	8-67
Suggested Additional Readings .....	8-71

---

## Session 9: Process Improvement and Optimization

Process Improvement and Optimization – Overview .....	9-3
Session Learning Objectives.....	9-5
Defining Process Improvement .....	9-7
Process Improvement Paths.....	9-9
Process Improvement Dynamics .....	9-11
Elements of Process Improvement .....	9-13
Process Improvement Methodologies.....	9-15
Six Sigma Quality.....	9-19
Tools for Six Sigma Quality Improvement.....	9-21
Flow Charts .....	9-23
Check Sheets.....	9-25
Histograms.....	9-27
Cause-and-Effect Diagrams .....	9-29
Pareto Diagram.....	9-31
Scatter Diagrams.....	9-33
Control Charts.....	9-35
Benchmarking .....	9-37
Balanced Scorecard .....	9-39
Lean Kaizen and Sustainability .....	9-41
Lean Kaizen Circle.....	9-43
Sustainability and Process Improvement Contribution.....	9-45
Review, Terms, Discussion Questions, Exercises.....	9-47
Terms Check .....	9-49
Performance Check – Answers and Test Documents.....	9-56
Discussion Questions.....	9-59
Case Study .....	9-63
Suggested Additional Readings.....	9-67

## Session 10: Organizational Management and Performance

Organizational Management and Performance – Overview.....	10-3
Session Learning Objectives.....	10-5
Objectives and Definition of Organizational Design.....	10-7
Principles of Organizational Design.....	10-9
Organizational Design Values .....	10-11
Designing Capable Organizations .....	10-13
Guiding the Organization Through Change.....	10-15
Change Management Strategies.....	10-17
Eight Steps of Change Management.....	10-19
Role of Change Leadership and Management.....	10-21
Risk Terms and Concept.....	10-23
Managing Organizational Resiliency .....	10-25
Tools for Managing Risk.....	10-27
Workplace Management Goals .....	10-29
Job Characteristics Model .....	10-31
Work Measurements and Standards .....	10-37
Work Measurement Techniques.....	10-39
Review, Terms, Discussion Questions, Exercises.....	10-47
Terms Check.....	10-49
Performance Check – Answers and Test Documents.....	10-54
Discussion Questions.....	10-57
Case Study.....	10-61
Suggested Additional Readings.....	10-65

## Session 11: Final Exam