APICS San Gabriel Valley Chapter

Execution and Control of Operations (ECO) Curriculum

Version 3.0

Session 1—Execution of Operations

Manufacturing Planning

- Manufacturing Planning Hierarchy
- Strategic and Business Planning: Direction- Setting
- Manufacturing Planning and Control: Tactical Operations
- DSP and ECO (Near Term Operations)

Defining Execution and Control Systems

- Manufacturing Environments
- Process Choices
- Process Layouts
- Batch Versus Flow Process Implications
- Batch Versus Pull Principles

Session 2—Scheduling and Authorization

MRP-Based Scheduling

- MRP-Based Schedule Elements and Inputs
- Interface With Material and Capacity Requirements Planning
- Operations Scheduling Techniques
- Other Scheduling Issues

Theory of Constraints Scheduling

Lean Scheduling

- Overview
- Key Elements and Goals of Lean Systems
- Interface With Manufacturing Planning
- Production Leveling

Session 3—Control Of Production

Scope and Principles of Operations Control

- Production Activity Control
- Quality Control

Production Activity Control: MRP-Based

- Scheduling and Control Interfaces
- PAC in Batch Production and Flow Manufacturing
- Control Techniques

Production Activity Control: Lean Based

- MRP- Versus Lean-Based Control Systems
- Production Control in Lean Systems
- Heijunka

- Takt Time
- Pacemaker
- The Store
- Kanban System
- Transaction Simplification

Inventory Management Issues

- Customer Service, Inventory Investment, and Efficiency
- Inventory Storage
- Inventory Identification
- Inventory Accuracy and Counting
- Accounting Classification
- Vendor Managed Inventory

Session 4—Control of Costs and Quality

Cost Control

- Cost Control Overview
- Product and Period Costs
- Job Order and Process Costing
- Absorption and Variable Costing Methods
- Activity Based Cost Accounting
- Cost Variances
- Cost of Quality

Control of Quality

- Quality Planning
- Types of Quality Problems
- Statistical Quality Control
- Process Capability

Session 5—Management and Communication

Approaches to Management

- Taylor's Scientific Management
- Worker Self-Control
- Management Leadership

Worker Development

- State of Self-Control and Responsibility
- Principles for Worker Development

Worker Participation and Involvement

- Types of participation and Involvement

Session 6—Quality and Continuous Improvement

The Seven Basic Quality Tools

Six Sigma DMAIC

- Define
- Measure

- Analyze
- Improve
- Control

PDCA Cycle

- PDCA Activities
- Plan
- Do
- Check
- Act

A3 Problem Solving

- Problem-Solving A3 Report

Session 7—Design Tradeoffs

Design Principles

- Local Design Principles
- Network Design Principles
- Global Design Principles

Design Techniques

- Supply Network Performance
- Improving Supplier Performance and Relationships
- Customer Performance and Relationship Improvements
- Design of Experiments
- Visual Management
- Workplace Design

Session 8—Case Studies

Case Studies

- Case Study: Production Process Analysis—Overview
- Case Study Part 1: Functional Layout Analysis
- Case Study Part 2: Cellular Layout Design