



SMART PRODUCTION SYSTEMS LLC

One-day Program:

INTRODUCTION TO SMART PRODUCTION SYSTEMS

Offered by SPS LLC

Goal: Introduce the participants to the main concepts and software of Smart Production Systems (SPS) and AI-enabled design of continuous improvement projects.

Intended audience: Managerial and engineering personnel of large, mid-size, and small manufacturing organizations.

Prerequisites: None.

Program organization:

- Two sessions: morning session (from 9 am to 12 noon) and afternoon session (from 1 pm to 4 pm).
- Each session consists of three periods of 50 min with 10 min breaks in between.

Resources:

- Textbook: S.M. Meerkov, P. Alavian, and L. Zhang, *Smart Production Systems*, Best Seller Publishing, 2025. This book will be provided to all participants.
- Website: www.SmartProductionSystems.com

Instructors: S.M. Meerkov, P. Alavian, L. Zhang

Syllabus:

Morning session:

- Smart Production Systems (SPS)
- Programmable Manufacturing Advisor (PMA)
- Relationship of SPS with Industry 4.0
- Terminology: Production System Types, Machine and Buffer Parameters, and Performance Metrics
- Preview: A Brief Demonstration of SPS Operation

- Hands-on exercises: Use SPS software (demos of PSE Toolbox and PMA available at the course website under the PRODUCTS tab) for production systems performance analysis and improvement.

Afternoon session:

- Analytics of three SPS management concepts:
 - Bottleneck machine
 - Bottleneck buffer
 - Quality bottleneck.
- Procedure for PMA-enabled Design of Continuous Improvement Projects
- Demonstration of PMA-based SPS Operation: Smart Transmission Case Machining Line

- Hands-on exercise: Design a continuous improvement project for a five-machine serial line in the PMA-based SPS environment.