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# Production management

## Finalità

State-of-the art concepts and techniques are combined to offer a practical solution to enhancing the manufacturing planning and the control systems.

## Programma

### I - TRADITIONAL TECHNIQUE FOR MANUFACTURING PLANNING AND CONTROL

- 1 – Demand Management (Demand management and production planning – Demand management technique: moving average – exponential smoothing – exponential smoothing + trend and seasonality correction)
- 2 – Inventory Control (The Economic Order Quantity Model – Periodic Order Quantity – Dynamic Lot Sizing)
- 3 – Flow production planning
- 4 – Lot production planning
- 5 – Project Management Techniques (Work Breakdown Structure - Gantt – Critical Path Method – Project Evaluation and Review Technique)
- 6 - Stopwatch time - Work Sampling - Predetermined Time Study

### II - MRP II

- 1 – Manufacturing Planning and Control (Definition – System framework – evolution of MPC systems - Manufacturing Resource Planning (MRP II))
- 2 - Production Plan (Bowman - Magee – Simulation What If - Resource Requirements Planning (RRP))
- 3 – Master Production Planning (Time Cycle Chart – Two level Master Production Scheduling – Methods for constructing Planning Bill of Material Rough-Cut Capacity Planning (RCCP))
- 4 - Material Requirements Planning (MRP) (Low Level Coding - Capacity Requirements Planning (CRP))
- 5 – Bill of Material
- 6 – Scheduling (Scheduling framework - Finite Capacity Scheduling (FCS) – Displacing rule; flow-shop and job-shop scheduling)

### III - ADVANCED CONCEPTS IN PRODUCTION PLANNING AND CONTROL SYSTEMS

- 1 - Just In Time (JIT) and kanban scheduling
- 2 – Just in Time and MRP integration: Synchro-MRP
- 3 - Workload control (Order review and release strategies (ORR) - Load-oriented manufacturing control)
- 4 - CONWIP system
- 5 - Optimise Production Technology (OPT)

## Attività d'esercitazione

Most of the basic principles and technique have been supporting by examples during the course.

## Modalità d'esame

Written test

## Propedeuticità

No

## Testi consigliati

1. A. Brandolese, A. Pozzetti, A. Sianesi, “Gestione della produzione industriale”, Ed. Hoepli, Milano, 1991
2. T. E. Vollmann, W. L. Berry, D. C. Whybark, “Manufacturing planning and control systems”, Irwin Mc Graw Hill, New York, 1997.
3. J. S. Martinich, “Production and operations management”, John Wiley, New York, 1997