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COURSE: **OPERATIONS MANAGEMENT**

TEACHER: **Fabio Fruggiero**

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Language **Italian**

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ECTS: **9**

n. of hours: **81**

Academic year: **2014/2015**

Campus: **POTENZA**

Semester: **II**

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### TOPICS

The module aims at explaining the fundamentals of strategic management in order to indicate the importance of the operations in the development of successful corporate strategies for the management of innovative products and goods and services as well as entire Supply Chain. The module is organized as to outline, in a combination of lectures and case study tutorials, qualitative and quantitative techniques for the strategic planning and control and management of operations in industrial field.

Topics of the module are covering the area of: Planning and Scheduling – under uncertain domain- while analyzing the use of information technology for Enterprise Resource Planning systems; Process Capability and JIT and Lean Production; Supply Chain Strategies and Planning; Project Management.

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### TEACHING METHODS

- Theoretical lessons
- Tutorials in classroom
- Tutorials in laboratory
- Project works
- Technical visits

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### TEXTBOOKS

*Handmade notes and duplicated lectures notes with recommended bibliography for thorough analysis:*

- Schmenner: Produzione: scelte strategiche e gestione operativa. Ed. Il sole/24 ore (MI), 1991.
- Urgeletti Tinarelli G., "La gestione delle scorte", Etaslibri, Milano, 1992
- Levy G., "MRPII logica di implementazione", Franco Angeli, 1994.
- A.Brandolese, A. Pozzetti, A. Sianesi.: Gestione della produzione Industriale - Hoepli (MI), 1995.
- Schonberger, Knod: Gestione della Produzione. Mc Graw-Hill, 1999.
- Shapiro R.D., Dalla Logistica al Supply Chain Management: teorie ed esperienze, ISEDI, 2000.
- Hall: Zero Inventories. Dow Jones-Irwin, 2001.
- Vollmann, Berry, Whybark : Manufacturing Planning and Control Systems. Mc-Graw-Hill, 2003.
- Chase et al.: Operations Management nella produzione e nei servizi. McGraw-Hill 2004.
- Fogarty, Blackstone et al., : Production & Inventory Control. South-Western Publishing group, 2004.
- Hopp, Sperman: Factory Physics – Foundations of Manufacturing Management. Irwin 2006.
- Levi, Kaminsky et al.: Designing & Managing the Supply Chain. McFraw-Hill, 2007.
- Tersine, Production/Operations Management: Concepts, Structure & Analysis. North-Holland, 2008.

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### ON-LINE EDUCATIONAL MATERIAL

web address: *ftp dedicated as course starts*

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### LEARNING OUTCOMES

On completion of the module a typical student should be able to:

#### **Knowledge and Understanding:**

- Understand the main concepts and terminology of operations strategies related to goods and services
- Understand the principles and rules of planning and management of operations

#### **Intellectual skills:**

- Analyze and Synthetize strategies for product design and process selection- services
  - Analyze and Synthetize methods to manage and optimize the production planning and scheduling of goods and services
  - Analyze the element of an Enterprise Resource Planning System
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- Analyze the strategies of forecasting, aggregate sales and operations Planning, Inventory Control, Material Requirement Planning, Operations Scheduling
- Analyze and Synthetize the principles of JIT and Lean Production
- Analyze and Synthetize strategies for supply chain design and planning
- Analyze the Project Management principles

**Practical Skills:**

- Create modules for performance management, forecasting, cost management, aggregate planning, Inventory control
- Realize a MRP system
- Specify Enterprise Resource Planning functionalities
- Realize a Business Plan

**Transferable Skills:**

- Apply ERP
- Manage Projects

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**REQUIREMENTS**

A good knowledge of the Industrial and Mechanical Plants topics is strictly required.

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**EVALUATION METHODS**

- Intermediate verifications
- Written examination
- Discussion of a project work
- Practical test
- Oral examination

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**DETAILED CONTENT**

Introduction to the Operations strategies and Management Change. Operations Strategies and competitiveness. The use of Industrial resources and the definition of industrial processes.

Product and Service Design, the use of the Bill of Materials (the standard flow and backflushing): The physical and information flow, process selection – services. The introduction to the operations management: the role of Time. Forecasting (criteria and methods) - measures of forecasting errors (AVG, MSE, MAD); Inventory Control: the Wilson model and the management of uncertainty. The Planning BoM and Super Bill of Material. The aggregate planning and strategies (Chase- Mixed- Level). The Master Production Scheduling and Rough Cut Capacity Planning. The Material Requirement Planning and the MRPII system: understanding the impact of variability on the capacity of production systems. Operations scheduling: the Job Shop Scheduling Problem - Models (analytic and heuristics)- Dispatching rules and metaheuristic approaches (Neural Networks, Genetic Algorithms, Tabu Search, Ants System, Bees Algorithms). The principles of JIT and Lean Production: definition of Kanban and the amount of Stocks in JIT systems. Synchronous Manufacturing and the Theory of Constraints. From Logistics to Supply Chain: Strategies and Design. The Order penetration points, the lumpy demand and the Bullwhip effect.

The role of Operation Strategy for innovative products. Strategies for Product Management: The Work Breakdown Structure- The Organizational Breakdown structure. The Gantt chart and disjunctive graph representation: PERT and CPM. The Definition and monitoring and control of a product. The Business Plan.

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**SEMINARS BY EXTERNAL EXPERTS**    YES     NO

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**BOOKS RECOMMENDED FOR READINGS:**

- Goldratt E.M., Cox J., The GOAL, Gower Publishing, 1984
  - R. Norman, La gestione strategica dei servizi , Etas libri, 1990.
  - Sun Tzu, L'arte della guerra, Feltrinelli 2003.
  - Spencer Johnson, Who moved my Cheese?, Vermilion London, 2006
  - Ken Blanchard sans Spencer Johnson, The one minute manager, HarperCollins, 2006.
  - Kim W. C., Mauborgne R., Strategia Oceano Blu, Rizzoli, 2009.
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