Logistics/Production

Instructor
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Time Frame
Contact hours and number of sessions: 16 sessions, 48 academic hours.

Introduction
As leading organizations become leaner and faster, each time they depend on trim, efficient and trustworthy operations. In this dynamic environment, the administrations of production and operations have vital importance. A successful organization will confront global competition with quality products, extraordinary customer service and effective cost control.

The management of operations and logistics, Supply Chain Management, is the key piece that allows all the functional areas of an organization to work together. Meanwhile the projects are the way that firms express their strategy, improving operations and offering new products and services.

Objectives
The course objective is to transmit the modern concepts of Supply Chain Management, applicable to all types of companies, provide a series of practical tools and integral training in project planning.

Course content follows the guidelines of three institutional world leaders along these lines: APICS for the administration of operations, PMI for project management and the Supply Chain Management Institute.

Learning Outcomes
Upon successful completion of the course, students will be able to:
- Prepare and implement a timeline for managing a project
- Evaluate and manage risks
- Implement models for managing daily operations and planning for future operations management
- Model and implement logistics planning, including simulation

Methodology
The material is taught combining the analysis of case studies with presentations on the teaching of several subjects, problem solving in small groups and simulation scenarios through computer use. In order to take full advantage of the class, it’s indispensable that students read and discuss cases before coming to class.

Course Outline
Parte A. Project Management.
Bibliography for the first part: Guido Lavalle et al., 2006

Session 1 – Balancing a Project. Scope Planning.

Session 2 – Time Planning

Session 3 – Cost Planning

Session 4 – Monitoring Project
The technique of earned value. Performance indexes.

Session 5 – Project Risk Management
Risk management processes: planning, identification, analysis, response and monitoring.

Session 6 – Quantitative Techniques for Risk Analysis.
Expected monetary value, PERT method, Montecarlo simulations.

Session 7 – Acquisitions Planning, Communications, Quality and Human Resources.
Auxiliary plans to complete the project.

Part B. Operations Management.

Session 8 – Introduction to Operations.
Production decisions: strategic, operative and control. Planning horizons: long term (business plan), medium term (operations and sales plan), short term (master production program). Planning for material requirement and for control of production activities.

Session 9 – Long Term Planning
Decisions of: product, processes and installations. Production for storage or to order. Determining capacity and location. Projections.

Analysis and process design.

Balancing production and sales. Plan for operations and sales. Inputs and responsibilities for an effective plan.

Session 11 –Master Production Program
The role of the master production program. The bill of materials (BOM). Programming in environments for manufacturing for storage and to order. Central concepts: pending, missing and available for promotion.

**Session 12 – Planning Material Requirements. Inventory Management.**
Introduction to Materials Requirement Planning (MRP). Inventory Management. Types and functions. Systems of fixed periods and fixed quantities for independent demand. Statistical determination of ordering (to order) and security inventory.

**Part C. Logistics.**

**Session 13 – Logistic Planning Model.**
Objectives of customer service: product, service, logistics, order processing and logistics information systems. Inventory strategies, transpiration and placement.

**Session 14 – Planning the Logistical Network**
Source placement, intermediate points and sinks. Graphic methods, heuristics and gravity models. Simulation methods.

**Part D. Computer Modeling and Simulation of Operations and Logistics.**
Bibliography for the third part: Simul8, 2008.

**Session 15 – Discrete Modeling and Simulation.**
Introduction to discrete modeling. Analysis of a computer case: optimizing production in a mixed environment-- Make-To-Order/Make-To-Stock.

**Parte E. Evaluation.**

**Session 16 – Conclusions. Project Presentations. Written Evaluation.**

**System for Evaluation.**
The evaluation will follow three components:

- **Final Exam:** As the teaching of the course material is completed, an evaluation of all the content takes place via a written exam and individually.

- **Research Project:** course participants should prepare a Research Project according to the instructions given during the course. This preparation of this plan is through a group and it should be written and turned at the last class meeting and also presented orally. This is a requirement for course completion and counts 30% of the final grade.

- **Class Participation:** class participation is evaluated through intensity and quality. It counts for 10% of the final grade.

Minimum assistance of 75% for all classes is required.

**Professor**
Germán Guido Lavalle.

PhD in Nuclear Engineering, Balseiro Institute, University of Cuyo (Argentina).

Director of GL&A Consulting, a firm specializing in matters of production, projects, modeling and simulation and risks.

Project leader of computational simulation development.

I was Rector of the Business University of Argentina (Universidad Argentina de la Empresa), Dean of the College of Engineering and Manager of International Relations of the National Atomic Energy Commission.

Won the prizes: “University Initiatives for Technology Linkage” (Minister of Education) and “Ernesto Galloni” (National Academy of Physical, Natural and Exact Sciences). Have published more than 20 international works/projects.

**Required Reading**

(Administration of Operations and Production: Manufacturing and Services).


**Suggested Reading**


