

JUST IN TIME SUPPLY CHAIN MANAGEMENT

Paris, 8 - 12 July 2013

20 contact hours / 3 ECTS credits

Prerequisites:

Students should have completed an introductory level course in operations management.

Learning outcomes:

This course provides planning and control tools for management of operations. Materials requirements planning, rank order clustering, to-from analysis and just in time are introduced.

At the end of the course, the student should be able to:

- Calculate an MRP sheet and understand the significance of "lowest level code".
- Grasp the difficulties of maintaining accurate MRP data and understand the differences between raw data and calculated requirements (Forrester Effect).
- List and describe the elements of Just-in-Time, analyse existing products and processes to determine effective clusters of processes, define efficient layouts and identify wastes.

Course description:

This course reviews MRP and Lean Manufacturing that includes JIT. Students are expected to acquire a working knowledge of techniques and review three academic cases relating to Mass, Lean and Agile/Mass Customization.

Class structure :

Students should visit a business with the aim of using lessons learnt to analyse the layout of the operations (including customers and suppliers where necessary). The objective is to identify inefficiencies, waste, bottlenecks and propose alternate layouts and solutions in line with Just-In-Time philosophies and techniques.

Type of course	Numbers of hours	Comments
Face to face		
lecture	20,00	20.00 hours of lectures are required to complete the module taught cause element. This is comprised of 4.00hrs MRP, 4.00hrs Supply Chain Game and 12.00hrs Lean/Just in Time principles.
External teaching source		
Self-Directed Learning	16.00	Students are required to work as teams to answer questions from three academic case studies that reflect on mass, lean and agile/mass customization.
Total student workload	36,00	

Teaching methods :

Lecture, Interactive live supply chain game, Project-work

Assessment:

A multi-style exam is set. Participants in this course are expected to work in groups of 2 to 4 students and add significant value to external organisations (companies, banks, government agencies etc). Using the plan, do, check & act philosophy in total quality management, this project is in preparation for master's degree

individual projects and to gain insights into applied research from the basis of application. Group project report highlighting inefficiencies, potential solutions and proposals to improve overall effectiveness.

ATTENDANCE DURING THE ENTIRE COURSE IS COMPULSORY

Type of control	Duration	Number	Percentage break-down
Continuous assessment			
QCM	1,00	1	20,00
Participation (Game)	1.00	4 hours	40.00
Others			
Project	1.00	1	40,00
TOTAL			100,00

Design of and Design for Logistics: A Live Supply Chain Game

The game used by Dr Newlands is based on the mobile phone market and was originally conceived to teach phone company managers and logistics planners the benefits of selecting various operating strategies. Operating strategies can be selected including make-to-stock, make-to-order and assemble-to-order. Dr Newlands revised the game to simulate mass production and lean manufacturing. These strategies constitute design of logistics.

Typically mass production conditions apply in the first round. Props used are from Brio. The product structure is simple. It is composed of various components and subassemblies; some of these are standard common parts; some parts introduce customer appreciated variants. Parts are produced by two suppliers. Their capacity is constrained to a number of parts per time period. Parts are ordered by purchasing and transported to the assembler. The product is assembled and shipped in batches to a warehouse. From there, they are sent to the trade customer. The trade customer distributes them to the points of sale. If the trade customer doesn't have any goods, competitor products are distributed instead. The aims of these game rounds are get a base lie and to enhance supply chain performance.

Modifying the design allows the product to be reconfigured to increase the number of customer appreciated variants. The objective then is to create a supply chain capable of mass customisation. This strategy better represents the reality of contemporary industry. Versions of this game have been used with concurrent engineering teams to explain design for logistics. Design emphasis focuses on *common interfaces (compatibility)*, *commonality*, *carry-over* and *late configurability*. The aims are to increase the awareness of product design on supply chain effectiveness, and to promote the incorporation of certain strategically desirable design characteristics.

Real world games have physical activities and tangible props. Because of this, these games are intuitive => one can see what is going on, who is busy, who is not, why. Those involved are not simply interacting; responding to prompts and post event feedback. Individuals act as participants. They must decide what to do, who should do it and when, what and when to communicate. Their behaviour is of equal importance to the activity done.

Observable bi-products include freed up space, people, equipment and other resources are easily identified. Comparison between rounds is felt, seen and measured. Feedback is provided on the game rounds using standard balance sheets and profit & loss statements. Financial records show participants from each business discipline the scale of the impact they can have on the profitability and return on investment of the business. Participants can jointly review financial benefits of reduced cost, reduced obsolescence risk, reduced competitor products sold and increased return on investment.

Reality is invented twice: once in the head and once in reality. Real world games allow participants to identify opportunities to change the supply chain and the product configuration. They then can agree what to do, how to do it and then make the changes.

Real world games introduce other factors. Participants can be distracted by outside events, react, be active or become proactive. They can interact, identify and describe phenomenon, learn from each other, identify opportunities, develop consensus, and then act together to put in place changes. Above all, learning by using real world games focuses on common goals, coordinating activities, sharing experiences, jointly reviewing situations and comparing with theory to identify potential changes, jointly deciding and jointly making the changes happen. The experiences of working together while playing such games provides the sensitivity required by each individual to work in partnerships for win/win benefits.

Required Readings:

Three End to End case studies that a review the End to End game – Mass, Lean and Agile/Mass Customization configurations.

"Operations Management", chapter 14 Material requirements Planning, chapter 11 Supply Chain Management, Chapter 11 supplement, Chapter 9 layout Strategies, Chapter 16 JIT and Lean Operations - Heizer and Render (Latest Edition- Pearson. Review chapter films and powerpoint on the 3*DVDs and CD-ROM. Copies available from IESEG librarian. Discuss/Analyse:
Self Test Page 590 Discussion Questions 4,7,10,11,14,16,19, Problems 14.5 14.6 Self Test Page 456 Discussion Questions 4, 7, 14, 15 Case studies Dell's Value Chain, Discussion Questions Self Test Page 660 Discussion Questions 1, 3, 4, 5, 6, 7, 8, 11, 12 Problems 16.4 Case Studies Page 664 JIT at Arnold Palmer Hospital, Discussion Questions)

Recommended Reading:

A Supply Chain Approach - Waller, D. (2004, Thomson Learning)

The Global Business Handbook: The Eight Dimensions of International Management - D. Newlands and M. Hooper (2009, available from IESEG librarian at a competitive rate.).

D. Newlands and M. Hooper (2009) The Global Business Handbook: The Eight Dimensions of International Management, Gower. - Chapter 22 (Laframboise): The Quality Management Situation- An Introduction, Chapter 8 (MacBeth): Supply Chain Management, Chapter 31 (Newlands): International Business Training using a Supply Chain Game, Chapter 4: Inter-firm Collaboration and Partnering: A key competence to satisfy demand Copies available from IESEG librarian at a competitive rate.)