UCL Université catholique de Louvain

LLSMS2034

2015-2016

Supply Chain Planning (in English)

5.0 credits	30.0 h	2q

Teacher(s) :	Foret Marc ; Van Vyve Mathieu ; Foret Marc (compensates Van Vyve Mathieu) ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Main themes :	This advanced course describes the objectives, architecture, module contents and limitations of integrated planning systems used in supply chain management, with a special emphasis on the manufacturing and production function (the logistics, transportation and distribution functions are covered in LSM2033): - Enterprise Planning Systems (ERP), - Manufacturing Planning and Control Systems (MPCS), - Advanced Planning and Scheduling Systems (APS). In the second part of the course, some specific supply chain planning problems are studied in more details, including mathematical formulations, solution methods and algorithms: - Strategic Supply Chain Network Design problems, - Tactical/Operational production planning and scheduling problems.
Aims :	At the end of the class, students should be able to - analyze the limitations of classical enterprise resources planning (ERP) systems with respect to supply chain coordination and integration; - Understand and master the archtitecture and module contents of advanced planning systems (APS) and manufacturing planning and control systems (MPCS), studied as examples of decision support systems (DSS) or tools for integrating and optimizing the planning of supply chain activities; - Be able to formulate, analyze and design solutions - using state-of-the-art and adequate methods - for some strategic supply chain network design problems, and some tactical or operational production planning and scheduling problems. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	The class mixes - for part I , lectures with additional individual readings and exercises, - presentation by a software vendor of the current evolution and trends in the market of advanced planning systems, - for part II, lectures with case studies performed in groups. Content : PART I: DECISION SUPPORT SYSTEMS FOR SUPPLY CHAIN PLANNING - Enterprise resources planning (ERP) and Manufacturing Planning (MRP-II and MPCS) : Scope, Module contents, Limitations - Justin Time (JIT) and Lean Manufacturing/Organization - Limitations of ERP systems to support the supply chain planning function - Advanced Planning and Scheduling (APS) systems : Scope, Architecture and module contents, decision models and methods PART II: PRODUCTION PLANNING AND SCHEDULING - Mixed Integer Programming (MIP): formulations and solution methods - Heuristic methods for combinatorial optimization problems - Supply Network Design : Models, Methods, Case study -Production Planning and Scheduling: Models, Methods, Case study Methods : In-class activities 1 Lectures 1 Exercices/PT 1 Project based learning At home activities 1 Readings to prepare the lecture 1 Exercices to prepare the lecture 1 Paper work 1 Students presentation

Other infos :	Other information Prerequisites (ideally in terms of competiencies) Introduction to operations management, production management and operations research. Introduction to supply chain management (LSM2030) Evaluation : - Case solutions including class presentations, - Written exam (open book) with open questions and exercises. Support : - T.E. Vollmann, W.L. Berry, D.C. Whybark, F.R. Jacobs: "Manufacturing Planning and Control Systems for Supply Chain Management", 5th edition, Irwin/McGraw Hill, 2005. - B. Fleischmann, H. Meyr: "Planning Hierarchy, Modeling and Advanced Planning Systems", Chapter 9 in Handbooks in Operations Research and Management Science : vol 11 Supply Chain Management, de Kok, Graves, Zipkin (eds), Elsevier, 2004. + slides provided through iCampus References : - T.E. Vollmann, W.L. Berry, D.C. Whybark, F.R. Jacobs: "Manufacturing Planning and Control Systems for Supply Chain Management", 5th edition, Irwin/McGraw Hill, 2005. - Stadtler H., C. Kilger (Eds), "Supply chain management and advanced planning : concepts, models, software and case studies", 2d edition, Springer, 2002. - Y. Pochet, L.A.Wolsey: "Production Planning by Mixed Integer Programming", Springer, 2006. - Handbooks in Operations Research and Management Science : vol 4 Logisitics of Production and Inventory Management, Graves, Rhinooy Kan, Zipkin (eds), Elsevier 1993 (chapters on production planning) - Handbooks in Operations Research and Management Science : vol 11 Supply Chain Management, de Kok, Graves, Zipkin (eds), Elsevier 2004 (chapters on production planning) - Introduction to Logistics Systems Planning & Control, Ghiani, Laporte, Musmanne, Wiley 2004. Additional and more specialized references will be provided during the class Internationalisation 1 international content (does the course tackle international issues related to the course content ?) 1 international case study Corporate features 1 case study 1 corporate guest Skills 1 presentation skills 1 writing skills 1 team work 1 problem solving 1 decision making 1 critical thinking Techniques and tools for teaching and learning 1 IT tools 1 modelling 1 quantitative methods 1 mathematics
Faculty or entity in charge:	CLSM

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Business Engineering	INGM2M	5	-	
Master [120] in Business engineering	INGE2M	5	-	
Master [120] in Management	GESM2M	5	-	
Master [120] in Management	GEST2M	5	-	