


5 crédits	30.0 h	Q2
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Enseignants	Foret Marc ;Van Vyve Mathieu ;
Langue d'enseignement	Anglais
Lieu du cours	Louvain-la-Neuve
Thèmes abordés	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.
Acquis d'apprentissage	<p>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 architecture 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.</p> <p>1</p> <p>-----</p> <p><i>La contribution de cette UE au développement et à la maîtrise des compétences et acquis du (des) programme(s) est accessible à la fin de cette fiche, dans la partie « Programmes/formations proposant cette unité d'enseignement (UE) ».</i></p>
Modes d'évaluation des acquis des étudiants	<p>assessment One case / group work and presentation around The Fresh Connection serious game, and one test, each for 50%.</p> <p>final exam The exam will cover the "theoretical" section of the course.</p> <p>assessment Oral presentation will be graded for clarity of analysis, business relevance, creativity, methodological rigor and synthesis. The student registered to a group will receive the grade of the group which will make 50% of his/her final grade. The other 50% of the final grade will be awarded based upon a personal and open book exam targeting the capacity to characterize and to articulate the relevant elements/methods or practices in SC planning.</p> <p>Active contribution to the class and group discussions is expected.</p>
Méthodes d'enseignement	<p>Lectures presenting the topics and methods, alternated with seminars by experienced managers (when available) and student presentations (group-work)</p> <p>SERIOUS GAME A considerable part of the learning in the course is achieved through group work and the resolution of a case presented in the serious game: The Fresh Connection. Final results, arguments and conclusions will be presented (oral presentation) making part of the total grade for the course.</p>
Contenu	<p>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</p> <p>course focus This course is an advanced course in supply chain management. We will look specifically about the planning aspect of it: deciding what, how & when should procurement, production, distribution and/or sales be done in the short to long term.</p> <p>Capitalizing on international and recognized professional body of knowledge in SCM such as Apics-SCC, Demand Driven Institute,...The course will describe and illustrate the SC planning challenges in today's supply chains through 2 main sections:</p>

	<p>The first one will do a critical review of the "so-called" MRPII formal and overall planning approach. The best practices, tools and limitations related to that approach will be characterized, highlighting the need and the importance of Supply Chain planning activities in modern SCM.</p> <p>The second one will offer to the student a first "hands-on" opportunity to experience the necessary alignments in SC planning through his/her participation (group) to a serious game (internet based): The Fresh Connection.</p>
Ressources en ligne	Notes, info, slides, and certain articles are available from Moodle UCL under the course LLSMS2034 heading.
Bibliographie	<p>Vollmann, Berry, Whybark, and Jacobs. Manufacturing Planning and Control Systems David Simchi-Levi, Philip Kaminsky, Edith Simchi-Levi. Designing and Managing the Supply Chain: Concepts, Strategies, and Case J.R Tony Arnold, Stephen N. Chapman, Lloyd M.Clive – Introduction to Materials Management Ptak and Smith, (McGraw-Hill, 2011). - Orlicky's Material Requirements Planning 3/E</p>
Autres infos	<p>At the end of the class, students should be able to</p> <ul style="list-style-type: none"> - Understand the role and impact of a SC strategy and its impact on the SC planning processes - Characterize the elements of a planning & control hierarchy: S&OP, RP, MPS, RCCP, MRP, CRP and to understand the built-in limitations of such approach - analyze the limitations of classical enterprise resources planning (ERP) systems with respect to supply chain coordination and integration and to understand and master the architecture and module contents of advanced planning systems (APS) - Be able to analyze, identify, and formulate ideas for improvement around demand/ supply synchronization issues at any relevant level of planning. <p>Pré-requis (idéalement en termes de compétences) : Introduction à : operations management, production management et operations research. Introduction à : supply chain management (LSM2030) Evaluation : - Solution et présentation finale des études de cas, - Examen écrit à livre ouvert: questions ouvertes et exercices. 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. + distribution des transparents par iCampus Références : - 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. - Stadler 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 Logistics of Production and Inventory Management, Graves, Rinooy 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. Encadrement : Autres : Eléments d'internationalisation : 1 contenu international (le cours aborde-t-il les problématiques internationales liées au contenu ?) 1 études de cas internationales Interventions d'entreprises : 1 étude de cas 1 intervenant du monde de l'entreprise Compétences transversales : 1 présentation orale 1 rédaction écrite 1 travail de groupe 1 résolution de problème 1 prise de décision 1 esprit critique Techniques : 1 outils informatiques 1 modélisation 1 méthodes quantitatives 1 mathématiques</p>
Faculté ou entité en charge:	CLSM

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Crédits	Prérequis	Acquis d'apprentissage
Master [120] en ingénieur de gestion	INGM2M	5		
Master [120] en ingénieur de gestion	INGE2M	5		