ME-419

Production management

Kaboli Amin

Cursus	Sem.	Type
Energy Management and Sustainability	MA1, MA3	Opt.
Managmt, tech et entr.	MA1, MA3	Opt.
Mechanical engineering	MA1, MA3	Opt.
Mineur STAS Chine	H	Opt.
Robotics	MA1	Opt.

Language of teaching	English
Credits	5
Session	Winter
Semester	Fall
Exam	Oral
Workload	150h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Project	2 weekly
Number of positions	

Summary

Production management deals with producing goods/services at the right time, quantity, and quality with minimum cost. This course will arm students with practical skills and hands on tools for demand management, production planning and control, and inventory management in manufacturing companies.

Content

- Basic concepts: Manufacturing system (material flow, information flow, and financial flow), Cost structure, Production structure.
- Demand Management: Objectives, Demand forecasting models, Demand forecasting methodology.
- Production Planning and Control: Objectives, Levels of planning; Production plan, Material Requirement Planning, Master Production Scheduling.
- Inventory Management: Inventory replenishment methods, Optimization, Key performance indicators.
- Just in time (JIT): Objectives, KANBAN method, limitations of JIT.

Keywords

Production Management, Manufacturing Companies, Demand Management, Production Planning and Control, Inventory Management, Just-In-Time (JIT)

Learning Prerequisites

Important concepts to start the course

- Understanding probability and statistics
- Data analysis using Excel

Learning Outcomes

- Choose production tools and methods based on performance and cost requirements and needs, taking into consideration applicability limits and associated hypotheses, CP8
- Model , analyse and optimize the internal logistics of a production and distribution system and the dynamic behaviour of a network of companies, CP9
- Design a a system based on engineering specifications utilizing suitable numerical and analytical tools for optimizing the design parameters, CP10

Transversal skills

- Assess progress against the plan, and adapt the plan as appropriate.
- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Use a work methodology appropriate to the task.
- Communicate effectively, being understood, including across different languages and cultures.
- Keep appropriate documentation for group meetings.
- Manage priorities.
- Take feedback (critique) and respond in an appropriate manner.
- Write a scientific or technical report.

Teaching methods

- Formal lectures
- Project-based learning
- Case studies
- Outside expert speakers

Expected student activities

- Individual: Active participation in class discussions, case evaluations, and Q&As
- In-group: Teamwork, Respect, Involvement, Constructive feedback

Assessment methods

- Continuous evaluation of reports and presentations during the semester;

  - Student work in group (same group during the semester) on a single case
  - Students implement theoretical models to the cases
  - In each project session: 30% presentation of concepts/models
    70% implementation to the case
- Final exam: presentation of the case and understanding of the concepts.

Supervision

Office hours	Yes
Assistants	Yes
Forum	Yes
Others	No email exchange. All information and communication regarding the course will be though Moodle.

Resources

Bibliography

- Manufacturing Planning and Control for Supply Chain Management, Vollmann, Berry, Whybark, Jacobs, 2011, McGraw-Hill.

Ressources en bibliothèque

- Manufacturing Planning and Control for Supply Chain Management / Jacobs

Notes/Handbook

- Manufacturing Operations Management: A complete course, Min-Jung Yoo and Rémy Glardon, World Scientific - UK, (forthcoming book in 2018)

Moodle Link

- http://moodle.epfl.ch/course/view.php?id=48