Production and logistics planning 2018

Study guide

Welcome to the course Production and logistics planning, PPU426, 2018. This study guide is intended to inform and guide you on what to expect and how to approach the course. I hope the guidance provided in this document will be helpful in achieving the study goals you have for this course. I recommend that you read this guide as soon as possible so that you see what to expect, and plan your studies in a sufficient way.

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Ph.D, Senior lecturer

Course code: PPU426

Course responsibility: San Aziz

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Examiner: Antti Salonen

Literature:

Operations Management: Processes and Supply Chains: Global Edition, 8:th, or later edition, by Lee J.Krajewski, Larry P.Ritzman and Manoj K.Malhotra,

The PowerPoint presentations from each lecture will be available in PDF format as additional teaching material. Also, files with study questions, SQ, will be provided for your convenience. Various additional documents may be included in the course.

Webpage: http://zoomin.idt.mdh.se/course/ppu426/

Learning objectives:

Student shall show ability to:

- Describe production and logistics systems through a broad range of examples.
- Utilize production and logistics planning techniques to solve production and logistics problems.
- Prepare a production plan through the use of aggregate planning.
- Analyze and evaluate the solutions from production and logistics problems.
- Optimize inventory and production sequencing.
- Optimize inbound and outbound (distribution) costs through the use of transportation techniques.

Examination:

- Project (Pro1): 1.5 credits: Literature study
- Written exam (Ten1): 6 credits

Attendance:
I strongly recommend you to attend all lectures!
There are no mandatory lectures. However, over the years, I have noticed a very strong correlation between lecture absence and exam failure.

Lecture plan/reading instructions

Lecture 1a – Performing a literature study

- PP-presentation: PLP_Literature study

Lecture 1b – Introduction to logistics

- PP-presentation: PLP_Introduction to logistics
- Hand out: ”Logistics”

Lecture 2 - Forecasting, linear regression, Time series, Exponential smoothing

- Operations Management, Chapter: “Forecasting demand”
- PP-presentation: PLP_Forecasting
- SQ Forecasting

Lecture 3 – Inventory management and control 1

- Operations Management, Chapter: “Managing inventories”
- PP-presentation: PLP_Inventory management_1
- SQ Inventory management

Lecture 4 – Capacity planning, Waiting lines

- Operations Management, Chapter: “Planning capacity”
- Operations Management, Supplement A: “Break even analysis”
- Operations Management, Supplement B: “Waiting line models”
- PP-presentation: PLP_Capacity and break even analysis
- PP-presentation: PLP_Waiting lines
- SQ Capacity

Lecture 5 – Inventory management and control 2

- Operations Management, Supplement C: Special inventory models
- PP-presentation: PLP_Inventory management_2
- SQ Inventory management

Lecture 6 – Location

- Operations Management, Chapter: “Locating facilities”
- PP-presentation: PLP_Location
- PP-presentation: PLP_Transportation
- SQ Location

Lecture 7 – Material Requirement Planning, Master Production Scheduling, Kanban

- Operations Management, Chapter: "Planning sufficient resources"
- Operations Management, Chapter: "Designing and managing processes":
  - *The Kanban system*.
- Hand out: MRP
- PP-presentation: PLP_MPS + MRP + Kanban

Lecture 8 – Purchasing and supplier management

- Operations Management, Chapter: "Integrating the Supply Chain"
- PP-presentation: PLP_Purchasing and Supplier management

Lecture 9 – Scheduling

- Operations Management, Chapter: "Planning and scheduling operations":
  - *Scheduling*
- Hand out: Scheduling
- PP-presentation: PLP_Scheduling
- SQ Scheduling

Lecture 10 – Layout, Line balancing

- Operations Management, Chapter: "Developing a process strategy":
  - *Layout*
- Operations Management, Chapter: "Managing process constraints"
- Operations Management, Chapter: "Designing Lean System":
  - *Designing Lean System Layouts*
- PP-presentation: PLP_Layout and Line balancing
- SQ Layout Line balancing

Lecture 11 – Aggregate planning

- Operations Management, Chapter: "Planning and scheduling operations":
  - *Operations planning and scheduling across the organization*
  - *Stages in operations planning and scheduling*
  - *Managing demand*
  - *Sales and operations plans*
- PP-presentation: PLP_Aggregate planning
- SQ Aggregate planning

Literature study

During the course, the students should perform a literature study. The study should be performed in a scientific way and not only summarize literature, but analyze and draw conclusions from the studied literature. The study should be documented in a report of 25000 – 30000 characters, reference list not included. It should include a minimum of 15 scientifically sound references, of which, at least 13 scientific, peer reviewed papers. Further it should be formatted according to a provided template.

Example of topics for the literature study:

- Flexibility in production
- Green supply chains
- Strategic sourcing
- Batch size optimization
- Spare parts logistics
- Strategic issues in logistics
- Strategic issues in production
- Supplier evaluation methods
- Other related topics (after approval from Antti)

The report will be evaluated based on the following criteria:

- Language: 1 – 5
  - Spelling
  - Grammar
- Structure: 1 – 5
  - Follow the template
- Reference handling: 1 – 5
  - Use Harvard system
  - No theories without multiple references
- Relevance of references: 1 – 5
  - Scientific
  - Up to date
  - Within the field
  - Sufficient amount
    - Minimum 15 references
    - At least 12 scientific articles/papers
- Quality of analysis 1 – 5
  - Draw conclusions from the study
  - Clear links between analysis, scope, and literature

A minimum score of 2 in any of the categories is required to pass the assignment.

The literature study may prove more time demanding than the 1.5 credits may indicate (40 hours), for those of you that are less experienced in academic writing. On the other hand, the exam probably doesn't demand 160 hours of studies.