Supply Chain Engineering (E076251)

Due to Covid-19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course Specifications
Valid as from the academic year 2019-2020

Course size
Credits 6.0  Study time 180 h  Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2020-2021
A (semester 1)  English  Gent  group work 5.0 h
  lecture 30.0 h
  seminar: practical PC room classes 5.0 h
  seminar: coached exercises 20.0 h
B (semester 1)  Dutch
  group work 5.0 h
  seminar: practical PC room classes 5.0 h
  guided self-study 30.0 h
  seminar: coached exercises 20.0 h

Lecturers in academic year 2020-2021
Raa, Birger  TW18  lecturer-in-charge

Offered in the following programmes in 2020-2021

<table>
<thead>
<tr>
<th>Programme</th>
<th>crdts</th>
<th>offering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridging Programme Master of Science in Industrial Engineering and Operations Research</td>
<td>6</td>
<td>B</td>
</tr>
<tr>
<td>Bridging Programme Master of Science in Industrial Engineering and Operations Research</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>Master of Science in Industrial Engineering and Operations Research</td>
<td>6</td>
<td>B</td>
</tr>
<tr>
<td>European Master of Science in Photonics</td>
<td>6</td>
<td>A</td>
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<tr>
<td>Master of Science in Industrial Engineering and Operations Research</td>
<td>6</td>
<td>A</td>
</tr>
</tbody>
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Teaching languages
Dutch, English

Keywords
Supply chain management, distribution logistics, inventory theory, forecasting, quantitative decision support tools, supply chain coordination

Position of the course
Whereas the course 'Manufacturing Planning & Control' of MaIEOR mainly considers the internal logistics of a production environment, this course looks beyond the four walls of a single company and studies the interaction of companies within (global) supply chains. The multiple functional aspects and decision-making levels of supply chain management are discussed, as well as coordination through integration across multiple supply-chain stages. All key managerial decision-making processes are supported by quantitative methods (as taught in the Operations Research courses of the MaIEOR).

Course sessions are highly interactive, active student participation is expected.

Contents
- Functional aspects of SCM:
  • network design
  • demand forecasting
  • inventory control
  • transportation planning
- Supply chain coordination:

(Approved) 1
• supply management
• customer & demand management
• the bullwhip effect
• horizontal and vertical collaboration
• Decision support systems for supply chain optimisation

Initial competences
Basic courses of both Operations Management and Operations Research

Final competences
1 Distinguishing the different aspects of distribution logistics and the decisions to be made, and relating these to each other.
2 Explaining the importance of risk management and information systems in supply chain management.
3 Proving that coordination and integrated decision making across the different stages of a supply chain can lead to performance improvement.
4 Thoroughly understanding the methods for designing and managing logistics networks and systems.
5 Building and applying mathematical models and formulas for integrated decision support.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract
This course unit cannot be taken via an exam contract

Teaching methods
Guided self-study, group work, lecture, seminar: coached exercises, seminar: practical PC room classes

Learning materials and price
Lecture slides, relevant journal papers, exercises and case study material are made available on the electronic learning environment.

References

Course content-related study coaching
Teacher and assistant are available upon request. The electronic learning environment is used for additional material.

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Written examination

Examination methods in case of periodic evaluation during the second examination period
Written examination

Examination methods in case of permanent evaluation
Oral examination, assignment

Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible

Extra information on the examination methods
• End-of-term: written exam theory + exercises, with additional oral discussion of theory questions
• Permanent (group work): one research-related assignment and one practice-related assignment in the course of the semester with written and oral reporting

(Approved)
Calculation of the examination mark

Permanent: 20% of final mark
End-of-term: theory + exercises (both 40% of final mark)
(A score of at least 40% for both the theoretical exam and the exercise exam is required to pass.)

The final score $F$ is determined as follows (with $T$ score for theory out of 20, $E$ score for exercises out of 20, and $P$ score for permanent evaluations out of 20):

if ($T < 8$ or $E < 8$) then $F = \min(0.2*P + 0.4*T + 0.4*E; 9)$
else $F = 0.2*P + 0.4*T + 0.4*E$