Operations Management

**Code:** SCI3112  
**Extent:** 20-25  
**Language:** English  
**Organizing department:** Industrial Engineering and Management  
**Teacher in charge:** Kari Tanskanen  
**Administrative contact:** Tarja Timonen

**Target group:** All master's students with sufficient prerequisite knowledge.  
**Application procedure:** Open for all students of Aalto University.  
**Quotas and restrictions:** No quotas.  
**Prerequisites:** TU-C2020 Operaatioiden johtaminen (Operations Management) or equivalent knowledge AND TU-C3010 Projektien suunnittelu ja ohjaus (Project planning and control) or equivalent knowledge.

**Content and structure of the minor**

**Objectives**

Operations management covers issues from operations strategy to efficient execution of operations, i.e., from configuring appropriate resources and processes into a production system that best contributes to the organisation’s goals and gives a competitive advantage to managing the production system in order to provide the best match with demand and supply. The minor in Operations Management builds on the generic principles on operations management and emphasizes the novel ways of encountering the challenges and utilising the opportunities related to creating and transforming technology-based business.

Advanced production systems cross organisational borders and utilise external resource networks effectively in global scale. Business models have developed beyond the conventional manufacturing-focused forms into service systems and project or solution business. As technological, social or organisational innovations emerge, resources and processes in production systems should be vigorously re-configured for improved performance from the customers’, network partners’ and society’s perspective. Sustainability, effectiveness and efficiency are all important elements of performance. Consequently, the minor in Operations Management covers issues on operations strategy, management of operations in inter-organisational systems, as well as the life-cycle management of production systems and their offerings to clients. Industrial service systems, project business framework, and integration of digital technologies into operations are central contextual themes.

There are several fields of specialisation in operations management, and students can select optional courses to emphasize their personal learning objectives. The students minoring in Operations Management can gain a thorough understanding of modern operations and service management practices and the underlying theories. They can learn the principles of

- planning and controlling operations in multi-firm context;
- configuring and managing resources and processes in inter-organisational relationships;
- analysing the performance of and the risks related to modern production systems through the relevant life cycle; and
- managing value in production systems according to the requirements of the dynamic business environments.

All in all, managing operations means getting the right things done. Broad knowledge in the field is a solid foundation for general management duties and it gives capabilities to run a new venture, as well.

Students intending to take the minor should have a basic understanding of the following areas and their terminology:

- Concepts and models used to measure financial performance of a firm (TU-A1100 Tuotantotalous 1)
- Concepts and theoretical frameworks that describe the design and operation of a production systems from strategy to daily operations (TU-C2020 Operaatioiden johtaminen).
- Concepts of project management and project business (TU-C3010 Projektien suunnittelu ja ohjaus)

The course codes given in parenthesis above refer to courses that perfectly provide the required basic understanding.

**Structure of the minor**

**Core courses (compulsory)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credits</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU-E2021</td>
<td>Advanced Operations Management</td>
<td>5</td>
<td>III</td>
</tr>
<tr>
<td>TU-E2031</td>
<td>Advanced Project-based Management</td>
<td>5</td>
<td>III-IV</td>
</tr>
</tbody>
</table>
You may include TU-C2020 Operaatioiden johtaminen (Operations Management 5 cr) OR TU-C3010 Projektien suunnittelu ja ohjaus (Project planning and control, 5 cr) in your minor, IF it is NOT already in your bachelor's degree.

**Optional courses** (Select as many courses as needed to fulfill the extent of the minor (20-25 cr):

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Credits</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU-E2013</td>
<td>Service Operations Management</td>
<td>5</td>
<td>III-IV/(20-21)/I-II/(21-22)</td>
</tr>
<tr>
<td>TU-E2040</td>
<td>Management of External Resources</td>
<td>3-5</td>
<td>I-II</td>
</tr>
<tr>
<td>TU-E6111</td>
<td>Facilitating Innovation in Business Ecosystems</td>
<td>5</td>
<td>I-II</td>
</tr>
<tr>
<td>TU-C3040</td>
<td>Sosiaali- ja terveydenhuollon tuotantotalous</td>
<td>5</td>
<td>II</td>
</tr>
<tr>
<td>TU-E2150</td>
<td>Sosiaali- ja terveyspalveluiden tuotantotaloudelliset menetelmät</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>TU-E1120</td>
<td>Strategic Management of Technology and Innovation</td>
<td>5</td>
<td>III-V</td>
</tr>
</tbody>
</table>