220559 - Operations Management

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 732 - OE - Department of Management
Academic year: 2018
Degree: MASTER'S DEGREE IN MANAGEMENT ENGINEERING (Syllabus 2012). (Teaching unit Compulsory)
ECTS credits: 5
Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: ALBERT SUNE TORRENTS
Others: Arcusa Postils, Ignasi
Sánchez García, José Luis

Degree competences to which the subject contributes

Specific:
1. Apply concepts and techniques of descriptive and statistical inference under uncertainty.
2. Apply quantitative and experimental methods for making decisions in situations where intangibles appear
3. Apply theories and inherent principles in the production and logistics area in order to analyze uncertainty complex situations and make decisions using engineering tools.
4. Apply theories and inherent principles in the general direction of an organization with the aim of analyzing uncertainty complex situations and make decisions using engineering tools.

General:
5. Ability to apply knowledge to solve problems in new environments or unfamiliar environments within broader contexts (or multidisciplinary) related to engineering.
6. Self-learning capacity to independent continuous training.
7. Ability to effectively communicate their findings, knowledge and concluding reasons to skilled and unskilled audiences, clearly and unambiguously.
8. Ability to integrate knowledge and formulate judgments with the aim of making decisions based on information that, with incomplete or limited include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
9. Ability to understand the impact of engineering solutions in a global and social context.
10. Ability to operate and lead multidisciplinary and multicultural groups, with negotiation skills, group work, relationships in an international setting, and conflict resolution.
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**Teaching methodology**

The course is developed by the use of three types of methodology:

- Lecture sessions.
- Case study debates and problem-solving classes (case studies and exercises).
- Self-study for doing exercises and activities.

In the lecture sessions, lecturers will introduce the theoretical basis of the concepts, methods and techniques and will show them with examples to facilitate their understanding.

In the case study debates and problem solving sessions, lecturers will guide students in applying theoretical concepts to solve problems and cases, always using critical reasoning. We will propose exercises and cases to be solved in and outside the classroom, to promote contact and use the basic tools needed to solve problems.

Students, independently, need to work on the materials provided by lecturers and the outcomes of the sessions of exercises/problems, in order to fix and assimilate the concepts.

The lecturers provide the curriculum and monitoring of activities (by ATENEA).

**Learning objectives of the subject**

The course Operations Management introduces students to the concepts, principles and techniques associated with the production system design process, the production process, the equipment maintenance process, as well as the process of improving the manufacturing system.

**Study load**

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group:</th>
<th>8h</th>
<th>6.40%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>15h</td>
<td>12.00%</td>
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<tr>
<td></td>
<td>Guided activities:</td>
<td>22h</td>
<td>17.60%</td>
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<tr>
<td></td>
<td>Self study:</td>
<td>80h</td>
<td>64.00%</td>
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### Content

<table>
<thead>
<tr>
<th>Module 1: Design of the production system</th>
<th>Learning time: 62h 30m</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 4h</td>
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<tr>
<td></td>
<td>Practical classes: 7h 30m</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 11h</td>
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<tr>
<td></td>
<td>Self study : 40h</td>
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</tbody>
</table>

**Description:**
- Value Stream Analysis
- Production process design
- Plant layout
- Time
- Design workplaces
- Assembly line balancing
- Quality Assurance

<table>
<thead>
<tr>
<th>Module 2: Maintenance and improvement of the production system</th>
<th>Learning time: 62h 30m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 4h</td>
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</tbody>
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**Description:**
- Equipment Maintenance System
- Improvement System
- Adjusted production
- JIT-kanban
- Smed

### Qualification system

The final grade depends on the following assessment criteria:

- Mid-semester exam 1, weight: 40%
- Mid-semester exam 2, weight: 40%
- In-class activities, weight: 10%
- Project, weight: 10%

At the end of the course, there will be a recovery exam which weight will be 80%.
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### Bibliography

#### Basic:


#### Complementary:


