

**DEPARTMENT of INDUSTRIAL ENGINEERING
COURSE CATALOGUE FORM**



| | | | | | | | |
|-------------------------------------|------------------|----------------|--|---|-----------------|------------------------------|----------------------|
| Course Code: INDE3312 | | | | Course Title: Production and Service Operations Planning | | | |
| Semester | L + R + L | Credits | AKTS | Language | Category | Instructional Methods | Prerequisites |
| 6 | 3 + 0 + 0 | 3 | 6 | English | Required | Lecture | INDE2001 |
| Course Objectives | | | Gain the ability to analyze planning activities carried out in production and service systems via mathematical modeling and heuristic methods and to analyze them within the decision support systems. | | | | |
| Course Content | | | Basic structures of production and service systems, forecasting methods, aggregate planning, inventory models, supply chain management, resource planning, scheduling. | | | | |
| Course Learning Outcomes | | | Students, who pass the course satisfactorily: 1. Structure the production planning, control and management stages on real life scale. [2] 2. Able to plan, analyze and implement the production and service operations problems and solve these problems with mathematical programming and heuristic methods. [2] 3. Define a project in the domain of this course and carry it out in the scope of team work. [7] [Note: Numbers in brackets are indicating the related program outcomes] | | | | |
| ISCED Category of the course | | | 52 Engineering | | | | |
| Textbook | | | Production and Operations Analysis - Nahmias S.C., McGraw Hill | | | | |
| Supplementary Material | | | 1. Inventory Management and Production Planning and Scheduling, Edward A. Silver, David F. Pyke, and Rein Peterson. 2. Operations management, Heizer, Jay H. | | | | |

COURSE PLAN

| Week | Topics | Laboratory / Tutorial Work |
|------|---|----------------------------|
| 1 | Introduction to production and service systems | - |
| 2 | Forecasting | - |
| 3 | Aggregate Planning | - |
| 4 | Aggregate Planning | LP modeling |
| 5 | Deterministic Inventory Models | - |
| 6 | Stochastic Inventory Models | - |
| 7 | Discussion and proposal of the term project | - |
| 8 | Supply chain management | LP modeling |
| 9 | ERP | - |
| 10 | MRP | - |
| 11 | Just in Time and Lean Production | LP modeling |
| 12 | Operations Scheduling | - |
| 13 | Project Scheduling | - |
| 14 | Recent advances in Production & Service systems | - |

COURSE ASSESSMENT SYSTEM

| | Activities | Contribution (%) |
|----------------------------|--|------------------|
| Semester Activities | Semester Written Exams | 40 |
| | Homework | |
| | Reports | |
| | Labs | |
| | Seminars | |
| | Presentations | |
| | Term Project | 15 |
| | Other (attendance, field trip etc.) | 5 |
| FINAL EXAM | | 40 |
| Total | | 100 |

CONTRIBUTION of the COURSE on INDUSTRIAL ENGINEERING PROGRAM OUTCOMES

| | Program Outcomes | Low | High |
|----|--|-----|------|
| 1 | Adequate knowledge in mathematics, science and subjects pertaining to Industrial Engineering; ability to use theoretical and applied knowledge in these areas in complex engineering problems. | | |
| 2 | Ability to identify, formulate, and solve complex Industrial Engineering problems; ability to select and apply proper analysis and modeling methods for this purpose. | | X |
| 3 | Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose. | | |
| 4 | Ability to devise, select, and use modern techniques and tools needed for analyzing and solving problems encountered in engineering practice; ability to employ information technologies effectively. | | |
| 5 | Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex engineering problems or discipline specific research questions. | | |
| 6 | Ability to work efficiently individually and in intra-disciplinary / multi-disciplinary teams. | | |
| 7 | Knowledge of Turkish and English languages; ability to communicate effectively orally, inscriptive and visually by using these languages (via business methods such as reports, presentations and instructions). | X | |
| 8 | Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself. | | |
| 9 | Consciousness to behave according to ethical principles and professional and ethical responsibility; knowledge on standards used in engineering practice. | | |
| 10 | Knowledge about business life practices (management activities such as project, risk, change and quality etc.); awareness in entrepreneurship, innovation; knowledge about sustainable development. | | |
| 11 | Knowledge about the global and social effects of engineering practices on health, environment, economics and safety, and contemporary issues of the century reflected into the field of engineering; awareness of the legal consequences of engineering solutions. | | |

ECTS - WORK LOAD TABLE

| COURSE ACTIVITIES | Quantity | Time (hr) | Work Load (hr) |
|---|----------|-----------|----------------|
| Lectures | 14 | 3 | 42 |
| Final Exam (Preparation included) | 1 | 25 | 25 |
| Semester Written Exams (Preparation included) | 2 | 10 | 20 |
| Out of class study time | 12 | 2 | 24 |
| Homework | 5 | 1 | 5 |
| Reports | - | - | - |
| Labs | - | - | - |
| Seminar | - | - | - |
| Presentations | - | - | - |
| Term Project | 1 | 25 | 25 |
| Total Load (hr) | | | 141 |
| ECTS Credits of the course (Total Work Load / 25) | | | 6 |

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| Revision / Date 5/02/2020 | Coordinator / Prepared By Çağlar Aksezer | Approved By Çağlar Aksezer |
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