

# IE 414 Manufacturing and Digitalization Strategies

**Gündüz Ulusoy**

FENS 2001

x9504

[gunduz@sabanciuniv.edu](mailto:gunduz@sabanciuniv.edu)

<http://people.sabanciuniv.edu/gunduz/>

## **Class Schedule:**

Monday 13:40-15:30 SBS G098

Wednesday 11:40-12:30 FENS L055

## **Office Hours:**

Monday and Wednesday by appointment.

## **Objectives**

The central objective of this course is to develop skills at analyzing and synthesizing solutions to manufacturing and digitalization strategy-related issues. Since the range of potential issues is quite extensive, we will concentrate primarily on Industry 4.0/Digitalization and digital transformation with particular relevance to future executives and attempt to encapsulate the most contemporary areas of the discipline.

## **List of Topics:**

1. Strategy / Competitiveness / Innovation
2. Lean Manufacturing
3. Manufacturing Strategies
4. Product as a Service
5. Industry 4.0 / Digitalization
6. Internet of Things (IoT) and Supply Chain Management
7. Topics in Manufacturing Operations Management (MOM)
8. Digital Transformation
9. Maturity and Readiness Models for Industry 4.0
10. Design Thinking

## **Learning Outcomes**

- At the end of the course, the student will have a detailed working knowledge of digital transformation issues in industry and services.
- At the end of the course, the student will be armed with a set of topics and concepts of manufacturing strategy such as Product as a Service.
- At the end of the course, the student will have a detailed working knowledge of Industry 4.0 / Digitalization issues.
- At the end of the course, the student will have working knowledge on Internet of Things (IoT) and SCM, and topics in MOM, and design thinking,

**Attendance** is required. The articles/cases included providing real-world illustrations of key concepts rely significantly on active student participation.

The deadlines are strict unless the student has an official excuse (a medical report either given by or approved by the Health Center of SU). **Late submissions will not be accepted.**

**Cheating** is subject to disciplinary action and a **null grade**.

**Group Projects:**

Teams of 3-4 students will prepare group projects. They can be of term paper type, a hands-on project at the Maker (Collaboration) Space facility, or an application in the industry of topics covered in the course. Students will submit a Project Proposal, Project Interim Report, and Final Report. Templates will be shared for each submission. Interim Report will constitute 35% of the Group Project Grade and the Final Report 65% of it.

**Presentation:** The groups will present their group projects in class in the last week of classes.

**Case Study:**

One case study will be covered. The students are expected to read the case, discuss it in class, and write an individual report answering questions asked on the case.

**Assignments:**

There will be 5 assignments. Their weight might be different but they will add up to 30% of the total grade.

**Final Exam:**

The final exam will be given on the date and time announced by the University. The final will cover all the course material.

<b>Item</b>	<b>Percentage</b>
Assignments	30
Group project	25
Group project presentation	5
Final exam	30
Class participation	10

**Recommended or Required Reading**

*Textbook:* Class notes.

*Readings:* Articles, reports, presentations, and websites.

*Course Web:* SUCourse

*Optional Readings:* Papers, reports, presentations, cases, website links will be added to SUCourse+ for optional reading.

**Note:**

**It is at the discretion of the instructor to make any changes in the Syllabus.**