

IE 414 Manufacturing and Digitalization Strategies

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Office Hours:

Tuesday 10:40-12:00 **or** by appointment.

Objectives

The central objective of this course is to develop skills at analyzing and synthesizing solutions to manufacturing strategy-related issues. Since the range of potential manufacturing 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.

Recommended or Required Reading

Textbook: Class notes.

Readings: Articles, reports, presentations, and websites.

Course Web: SUCourse

Cases: Three Harvard Business School cases.

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

List of Topics:

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

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.
- At the end of the course, the student will have a detailed working knowledge on designing a manufacturing strategy at the factory level.
- 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 Balanced Scorecard and Product as a Service -i.e., Servitization.

Course Policies & Grading

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). Generous deductions will be made for late submissions.

Cheating is subject to disciplinary action and a null grade.

	Percent (%)	Number of
Assignments	30	3
Group Project	30	1
Case Study	30	3
Participation/Attendance	10	-

Assignments:

Assignments will be short individually prepared papers answering questions related to topics covered in class.

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.

Case Study:

Three case studies will be covered. The students are expected to read these cases, discuss them in class, and write a short report answering questions asked on the case.

Note:

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