

IE251 Manufacturing Process Innovation (IE251)

Instructor: Prof. Young Jae Jang (x3130)

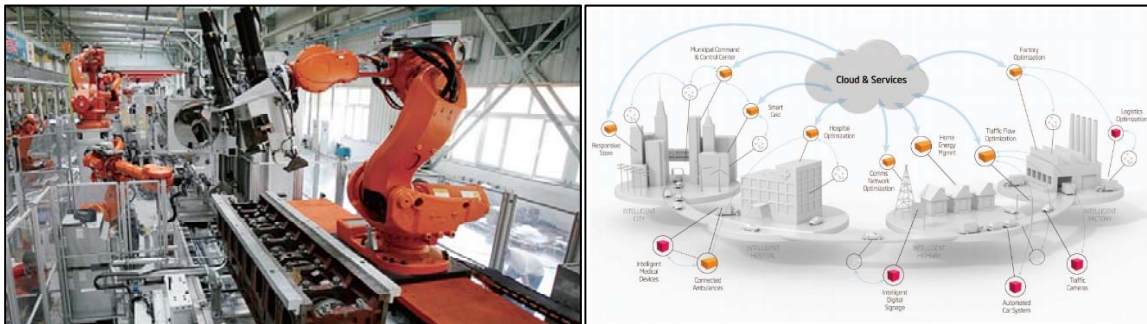
Email: yjang@kaist.ac.kr

Office Hour: TBD

URL: sdm.kaist.ac.kr

Class website: klms.kaist.ac.kr (registered students only)

Lecture: MW 9:00am ~ 10:30am (E2 Edu 3.0 room – 2nd floor in the IE dept building)



Textbook:

- *Factory Physics: The Foundations of Manufacturing Management, 3rd Ed.* (2011) by Hopp and Spearman, Irwin Press

Reading:

- *Management Concert*, Business Books Press (2010)
- *The Goal: A Process of Ongoing Improvement* (1992) by Eliyahu M. Goldratt and Jeff Cox

Prerequisites

- There is no prerequisites for the course. Students are expected to have basic understanding of Probability and Statistics. Also, students are highly encouraged to take the course with OR1 during the semester.

Goal of the course

- This class is designed for the second year undergraduate students at KAIST majoring in Industrial and Systems Engineering (ISysE). The primary goal of this course is to help students develop problem solving skills with ISysE methods in the context of manufacturing planning and control. Students will learn the fundamentals of manufacturing system operations and various manufacturing system related issues such as inventory decisions, production planning, scheduling, supply chain management, and IT and Internet of Thing (IoT) in production systems.

- Since this is the first mandatory class for the ISysE major students, the class also introduces the fundamental ISysE problem solving techniques and knowledge including mathematical modeling, mathematical programming, probability system modeling and statistical analysis with the problems related to manufacturing operations.
- The lectures will focus on the theoretical aspects of the manufacturing related topics. Homework and products will emphasize the practical applications and case studies conducted by the instructor. Additional instruction may be provided through guest lectures from industry, videos lectures, or games to help match theory and practice.

Grading:

- The final grades will be determined by two exams, six quizzes, a group project, and readings/class participation. Homework will be assigned but not graded. Instead the problems in the homework will be given in the quizzes. Therefore make sure to understand the material yourself.
- The breakdown of grades will be:
 - Exams: 40 %
 - Quizzes: 20 %
 - Participation: 20%
 - Group Project: 20 %