

# **MEC 696 - Special Problems in Mechanical Engineering**

The State University of New York, Korea

**Spring 2023**

**Subtitle:** Innovation & Entrepreneurship in 4<sup>th</sup> Industrial Revolution

**Instructor:** Prof. Yang, Min Yang [minyang.yang@sunykorea.ac.kr](mailto:minyang.yang@sunykorea.ac.kr)

**Course:** Tutorials

**Lectures:** TuTh 12:30-1:50

**Textbook:** Course materials

**Reference:** The innovator's solution: creating and sustaining successful growth by Clayton Christensen, Harvard Business School Press. The Fourth Industrial Revolution by Klaus Schwab, World Economic Forum.

**Office Hours:** Tuesday and Thursday @ 14:30-16:00 (or by appointment)

## **Course Description:**

This course is intended to strengthen student's innovation capability and to encourage entrepreneurship in 4<sup>th</sup> Industrial Revolution. At first, from the historical perspective, the First, Second, Third and Fourth Industrial Revolution will be explained with characteristics, processes and effects of each Industrial Revolution. And the relationship between industrial revolution and innovation will be told. Definitions, characteristics and types of innovation will be explained. Origins of innovation will be studied from the history of innovation. Students will learn the problem-solving process, and apply it for innovation. The course will cover the entire process of innovation.

During the semester, each student will select an innovation project for which they will write a proposal. The topic of the proposal has to be approved by the instructor before the proposal is submitted. A final report and presentation are due at the end of the semester on a day to be announced.

**Topics:**

- Introduction
- Industrial Revolution
- Characteristics of 4<sup>th</sup> Industrial Revolution<sup>3</sup>
- Definition of Innovation
- Difference between Renovation and Innovation
- Types of Innovation
- Value Creation
- Origin of Innovation
- Problem-solving process
- Application of problem-solving process to innovation
- Innovation of Future
- Entrepreneurship

**Grading:**

Homework	30%
Quiz (two)	30%
Project (proposal, presentation and final report)	30%
Attendance	10%

**Policies:**

- Homework assignments will be posted on the Brightspace.
- The Brightspace can be accessed at <http://brightspace.stonybrook.edu/>
- The time and details about exams will be announced in the class (and also posted on the Brightspace).
- It is the responsibility of students to make sure that they can access the Brightspace and they have a working email registered with it. The Brightspace should be checked frequently for new materials.
- Quiz will be closed book and note.