

Design and Drawing 1

Syllabus Number

1G302

Basic Major Subjects

Elective Requisites 2
credit

INOUE HIDEAKI

1. Course Description

Understanding of Design and Drawing is deepened by studying and learning the basics of machine design, strength and stiffness of materials, and accuracy and precision of machines. Students will learn the design skills and methods for five basic machine elements, namely, screw, shaft, bearing, gear and spring, and exercise designing of them. By the end of the course, the design calculation and design drawings for the above five elements will be completed. In this course, and students perform a group work and students make a presentation of their solution for task in front of other students. Students can acquire the knowledge, skill and behavior for DP2 to DP4.

2. Course Objectives

It's so important to have skill and knowledge of basic Design and Drawing if one is to pursue a career in Product Engineering (MONOZUKURI).

In this course, students will learn the basic design of machines, design concepts, material strength and stiffness, machine accuracy and precision, and international standards for machines. Another purpose of this course is to learn the design and drawing methods for five element components of machine, namely, screw, shaft, bearing, gear and spring. Objective of this course is acquiring the fundamental knowledge and skills for the Design and Drawing for Product Engineering. And students will have a presentation skill through this course. So, students can discuss about drawings based on their learning of this course.

3. Grading Policy

Students submit a report on the assignments set in each lesson. Grades will be evaluated based on the results of the submitted report (100%).

4. Textbook and Reference

Textbook

Textbook:『Mechanical Design Method(the second Edition)』:Tadao Tsukada ;Morikita Publishing Co., Ltd.

5. Requirements(Assignments)

Students should check the scope of the next lecture on the syllabus, read the textbook, and sort out any questions (1 hour). In addition, as a review after class, please read the textbooks, notebooks that describe the contents of the lectures, and teaching materials to deepen your understanding of what you have learned (1.5 hours).

6. Note

Students should bring a scientific calculator, but If you don't have a scientific calculator, you don't need to buy one because the calculation function of your smartphone is enough. Bring your notebook and the triangle ruler.

7. Schedule

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| [1] | Basic of Mechanical Design |
| [2] | Strength and Rigidity of Material |
| [3] | Accuracy of Machine |
| [4] | Design of Screw |
| [5] | Group Work and Presentation regarding Design of Screw |
| [6] | Design of Shaft |
| [7] | Group Work and Presentation regarding Design of Shaft |
| [8] | Design of Bearing |
| [9] | Group Work and Presentation regarding Design of Bearing |
| [10] | Design of Gear |
| [11] | Summary about Design of Gear |
| [12] | Group Work and Presentation regarding Design of Gear |
| [13] | Design of Spring |
| [14] | Group Work and Presentation regarding Design of Spring |
| [15] | Summary |