

Kinematics of Mechanism

Syllabus Number

1G203

Basic Major Subjects

Elective Requisites 2
credit

IKEMATA, Yoshito

1. Course Description

You learn the concept of power and learn about the relative motion between each mechanical portion. We support the ability to conduct analysis what kind of movement a mechanism carries out, the ability to perform "synthesis of a mechanism" which devises the mechanism in which I make given movement, and the skill that gives these both and is useful for a machine design. In order to understand the mechanism about the combination and movement of a machine element, first, study a center at opportunity matter, a chain, and the moment as a basic concept of mechanism study, and pass the analysis of speed and acceleration -- a linkage mechanism and a cam -- I roll, progress with contact conduction and the gear, and also consider a robot's etc. application. Based on a textbook, I perform a lecture and an exercise, and ask for presentation by considering an exercise problem as a report at any time. You learn the knowledge and skill about DP3, DP4, and DP5 in this lesson.

2. Course Objectives

You learn the concept of power and learn about the relative motion between each mechanical portion. You support the basic skill of a machine design or robot technology by giving the ability to conduct analysis what kind of movement a mechanism carries out, the ability to perform "synthesis of a mechanism" which devises the mechanism in which I make given movement, and these both.

3. Grading Policy

Perform a lecture and an exercise based on a textbook and ask for presentation by considering an exercise problem as a report at any time. About the subject which asked for presentation during session, I certainly answer, and include the answers in the results. The results of a term-end examination are mainly estimate.

They are 90% of a periodic exam, and 10% of a subject in a lesson. I do a re-examination on the unsuccessful applicant(s) of a periodic exam in principle. I am premised on or more 2/3 attendance of a course load.

4. Textbook and Reference

Textbook

Igaki, Nakayama, Kawashima, Yasutomi Mechanism study
Asakura Publishing

5. Requirements(Assignments)

Before a lesson, please read the next lecture range of the specified textbook, and make collectively a note of the point which is hard to understand. (About 1 hour) After a lesson should carry out the review, when the subject in a lesson occurs, and please create the note of the contents. When an understanding is not enough, please check and make a note of a point in question by next time. Moreover, the first technical term to get to know should understand the meaning, and should summarize it in a note. (About 2 hours)

6. Note

You use a mathematical calculator.

You are premised on possession of a mathematical calculator in a term-end examination.

7. Schedule

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|------|--|
| [1] | The concept of mechanism study |
| [2] | Element, pair |
| [3] | Degree of freedom |
| [4] | chain |
| [5] | Instantaneous center |
| [6] | Analysis of speed Analysis of acceleration |
| [7] | Linkage mechanism |
| [8] | A special linkage mechanism |
| [9] | Cam |
| [10] | Friction wheel |
| [11] | Infinitely variable |
| [12] | Gear |
| [13] | Tooth profile |
| [14] | Train of gears |
| [15] | Solid linkage mechanism |