# Physics 1

Syllabus Number 2G106
Basic Major Subjects
Requisites 2 credit
KAWAMURA, Masaaki

1. Course Description

Students study vector, one-dimensional motion, two-dimensional motion, Newton's low and its application after learning an international unit as basic of physics. In this class, teacher explains basic principle and solves exercises written in text. As a result, students can deepen their understanding.
Students can acquire knowledge about DP1 in this class.

2. Course Objectives

Students learn lows of physics which governs motion of planetary, flight of plane and rocket and satellite. Goal of this class is that the students can comprehend relations between forces and motions based on Newtonian mechanics and can get ability to apply to other problems.

3. Grading Policy

Attendance more than two thirds, midterm exam 1 (30%), midterm exam 2 (30%) and term end exam (40%).
The students will get simple explanations after these exams.

4. Textbook and Reference

Textbook
Text : ISBN978-4873610740

5. Requirements(Assignments)

Read the text within the contents of the next lecture and write in a notebook (1.5 hours) because students need concept of differential and integral calculus, trigonometric function and vector.
After the lecture will be ended, solve the exercises in the text in order to review (1.5 hours).

6. Note

Bring a scientific calculator in case of calculation trainings in every class.
There is a possibility of change of the contents of class depending on the progress.

7. Schedule

[1] Introduction
[2] Unit and dimension, significant figures
[3] Rectangular coordinate system and polar coordinate system, vector, component, addition
[4] One-dimensional motion : relation of location and velocity and acceleration, derivative, linear motion of uniform acceleration
[5] Summary, midterm exam 1
[6] Two-dimensional motion (1) : relation of location and velocity and acceleration, plane motion of uniform acceleration
[7] Two-dimensional motion (2) : relation of location and velocity and acceleration, plane motion of uniform acceleration and motion of projectile
[8] Two-dimensional motion (3) : uniform circular motion, centripetal acceleration
[9] Summary, midterm exam 2
[10] Newton's first low : low of inertia
[11] Newton's second low : force and acceleration, mass and weight
[12] Newton's third low : low of action and reaction
[13] Application of lows of motion (1) : uniform circular motion, centripetal force
[14] Application of lows of motion (2) : nonuniform circular motion, acceleration at tangential direction, inertial force
[15] Application of lows of motion (3) : drag force, friction drag, air drag