Physics 3

Syllabus Number 2G310
Basic Major Subjects
Elective Requisites 2 credit

NAKAMURA, Shinichi

1. Course Description

Charge and Coulomb's law, electric and magnetic difference, electric field and potential, current and magnetic field, Lorentz force, law of change of electric field, law of change of magnetic field, evolutionary topic
By following the textbook, I will explain the details and show concrete calculations. Do exercises every time and increase your understanding. The exercise is active learning, so students can consult with each other and discuss to solve them.
Each lecture will be given by chalk talks for the first hour or so and exercises for the rest of the time.
In this lesson, you will acquire knowledge about DP 1.

2. Course Objectives

We aim to have a comprehensive understanding of basic laws of electric and magnetic phenomena and how they are applied. You will practice every time and deepen your understanding.

3. Grading Policy

Grades will be evaluated only by the results of the final exams. However, when exercises are given as supplements etc., report points may be added to the submitter.
Each exercise and answer will be posted on the homepage. By reviewing each page on the homepage, you can feed back your learning outcomes.

4. Textbook and Reference

Textbook
Yasuo Hara Basic Physics Academic Book Publisher, ISBN 978-4-7806-0660-7
Another textbook can be used equivalent to "Basic Physics".

5. Requirements(Assignments)

Please read the electric and magnetic parts of the specified textbook (or equivalent textbook) in advance about 1.5 hours as preliminary study. Master the math necessary for understanding.
As a review, for 1.5 hours, please answer every exercise question and study further about the related part of the textbook.

6. Note

Please bring a scientific calculator every time for exercises.
In some cases, OHP, VTR, DVD, etc. will be used in combination.
We will use the homepage by placing exercises. http://www.ase.teikyo-u.ac.jp/faculty/nakamura/

7. Schedule

[1] Vector
[2] Charge and electric field (1) Charge and charge conservation law
[3] Charge and electric field (2) Coulomb's law
[4] Charge and electric field (3) Electric field and Gauss' law
[5] Charge and electric field (4) potential
[6] Charge and electric field (5) Capacitor
[7] Charge and electric field (6) Dielectric and electric field
[8] Current and magnetic field (1) Current and electromotive force
[9] Current and magnetic field (2) Ohm's law
[10] Current and magnetic field (3) Connection of electrical resistance
[11] Current and magnetic field (4) Magnet and magnetic field
[12] Current and magnetic field (5) Magnetic force acting on charged particles
[13] Current and magnetic field (6) Magnetic field created by current
[14] Current and magnetic field (7) Ampere's law
[15] Final exams, summary