

## MODULE OUTLINE

1. **Course Title** : Basic Physics I
2. **Code/Credit** : MFF 1011 / 3 credit hours
3. **Prerequisite** : -
4. **Status** : Compulsory / ~~Elective~~
5. **Short description of the course**

This course is a compulsory course from Faculty of Mathematics and Natural Sciences, UGM, which is conducted by Department of Physics. It is part of the basic courses to provide a solid foundation for building application of physics for the purposes on chemistry at the next levels. The course introduces basic physics principles and applications of these ideas in the real world. The course covers basic kinematics, mechanics, thermal physics, properties of fluids, waves, basic optics, electricity, magnetism, electromagnetism, quantum theory and nuclear physics.

6. **Course objective**

At the end of the course the student should comprehend the fundamental concept of dynamics and thermodynamics in physics.

7. **Learning outcomes**

- i. To apply the concept of basic kinematics, mechanics, thermal physics, properties of fluids

8. **Course contents**

The course will cover about

- i. Kinematics
- ii. Dynamics I: The Concept of Style
- iii. Dynamics II: Business and Energy, Many Particle Systems
- iv. Dynamics of Stringent I: Torque and Moments of Inertia
- v. Dynamic Strength II: Equilibrium of Rotation and Translations, Gravity, Fluid, Vibration, Waves
- vi. Temperature, Heat and Law of Thermodynamics I
- vii. Entropy and the Law of Thermodynamics II

9. **Assessments**

The final grade for the course will be based on the following items weighted as indicated:

- i. Assignment : 30%
- ii. Midterm : 30%
- iii. Final Examination: 40%

Guidelines for the conversion of the numeric scores into the alphabetic grades:

Scores (%)	Grades	Conversion
90.0–100	A	4.00
85.0–89.9	A–	3.75
80.0–84.9	A/B	3.50
75.0–79.9	B+	3.25
65.0–74.9	B	3.00
60.0–64.9	B–	2.75
55.0–59.9	B/C	2.50
50.0–54.9	C+	2.25
40.0–49.9	C	2.00
35.0–39.9	C–	1.75
30.0–34.9	C/D	1.50
25.0–29.9	D+	1.25
15.0–24.9	D	1.00
0.0–14.9	E	0.00

## 10. References

1. Halliday, D., Resnick, R and Walker, J., 2014, Fundamental of Physics, Fundamental of Physics Extended, tenth edition, John Wiley & Sons, Inc, USA.
2. Tipler, P.A., 2008, Physics for Scientists and Engineers, sixth edition, W. H. Freeman and Company, New York, USA
3. Raymond A. Serway, dan John Jewett, 2014, Physics for Scientists and Engineers, Brooks/Cole Cengage Learning, Singapore.