

❖ **PHYS_0174: Physics for Science and Engineering 1**

Instructor : Jeungphill Hanne

❖ **Syllabus**

1. SCUPI 2021 spring Academic Calendar

- Academic Calendar : Midterms & Final etc.
- My Schedule : Office hours etc.

2. Course Introduction

- Course information
 - Subject, Text book, Lecture Hour, Office hour, Course website, etc.
- Course Objective & Scope
- Course Grading & Tentative Course Schedule

3. Introduction of Physics

- What is physics and Why need Physics
- Scope of Physics & What is Classical Mechanics

1. SCUPI 2021 spring Academic Calendar

- Academic Calendar : Midterms & Final etc.

SCUPI Academic Calendar for 2020-2021 Spring																											
	Feb.Mar.			Apr.			May			Jun.			Jul.			Aug.											
Monday		1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23
Tuesday		2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24
Wednesday		3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25
Thursday	25	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26
Friday	26	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27
Saturday	27	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28
Sunday	28	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29
SCU Week	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
SCU Term	Spring Term																			Intl.wk.	Summer Recess						

Notes:
 Registration: Feb.25-26
 Make-up exam: Feb.26-28
 Classes begin: Mar.1
 Tomb Sweeping Day: Apr.4
 Dragon Boat Festival: Jun.14
 International Weeks (Intl.wk.): Jul.5-16

1st Midterm

2nd Midterm

Final

This schedule is preliminary!!

1. SCUPI 2021 spring Academic Calendar

- My Schedule : Office hours etc.

2020-2021 Spring Semester Course Schedule					
Class time	Monday	Tuesday	Wednesday	Thursday	Friday
08:15-09:00			Electric Circuit 01 3-102		
09:10-09:55			Electric Circuit 01 3-102		
10:15-11:00	Physics I 01 3-101		Electric Circuit 01 3-102		Physics I 02 3-101
11:10-11:55	Physics I 01 3-101		Office Hour Electric Circuit 01		Physics I 02 3-101
Lunch Break					
13:50-14:35		Physics I 02 3-101	Physics I 01 3-101	Electric Circuit 02 3-103	
14:45-15:30		Physics I 02 3-101	Physics I 01 3-101	Electric Circuit 02 3-103	
15:40-16:25		Office Hour Physics 1 02	Office Hour Physics 1 01	Electric Circuit 02 3-103	
16:45-17:30				Office Hour Electric Circuit 02	
17:40-18:25					

But, you can come to my office anytime when I am in my office ^^

2. Course Introduction

• Course information

• Physics for Science and Engineering 1

- Learn the basics of General Physics 1 :
Newtonian Mechanics and Gravity
→ Fundamental to Engineering Research

• Text Book

- Principle of Physics by David Halliday ,
Robert Resnick & Jearl Walker,
10th edition.:ISBN-13: 978-1118230749s

• Lecture

- Instructor : Jeungphill Hanne, PhD
jeungphill.hanne@scupi.cn
- Time : Mon.(10:15-11:55),or Wed. (13:50-15:30)
- Office Hour : Tue.(15:40-16:25)/ Wed.(16:45-17:30)
- Office : 3-321A @ Zone 3

• TA (3TAs):

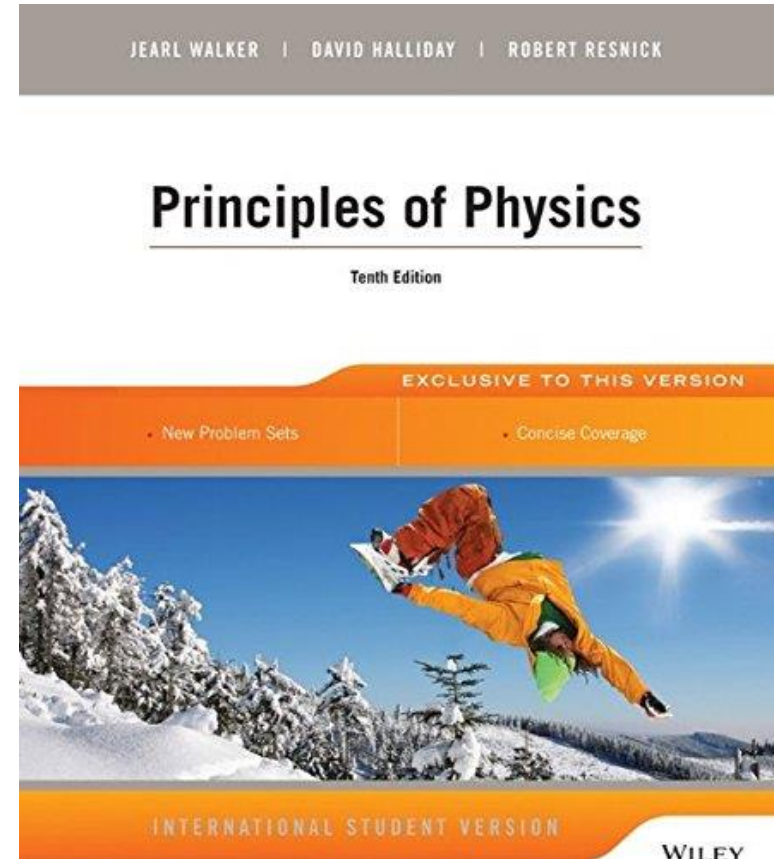
- Office Hrs : To be announced.

• Course Format

- Lecture, and Active Participation (i.e. Quiz, Quiz Presentation, Group Presentation, etc.)

• Course Grading

- Two Midterms, Final, Homework, Quiz, and Attitude (ex. Attendance, Engagement, Punctuality for HW, etc.)



2. Course Introduction

• Course Scope & Objective

- Objective : Understanding the basics of “Classical Mechanics”, Learning new Physical, or mathematical properties/theorem and eventually How to derive them from Newton’s Laws
 - Scope : Motion, Newton’s Three Laws, Gravitation, new Physical, or Mathematical properties (i.e. Work, Momentum, Kinetic/Potential Energy, Center of Mass) , Specific Motion (i.e. Rotation), Rigid Body Motion, Equilibrium, and OSCILLATIONS etc.
- Required : **Some mathematical Background ! (Vector, Derivative, Integral)**

All theorem & concepts will be derived from Newton’s Laws , except Gravitation!

• Course Grading

- Grading Components : HW(15%), Quiz (10%), Midterm I (23%), Midterm II (23%), Final (24%) and Attitude(5% : Attendance, Engagement, Punctuality for HW, etc.)

Tests are not accumulative and may include something taught in the class !

Policy is subjective to be changeable!

• Tentative Course Schedule

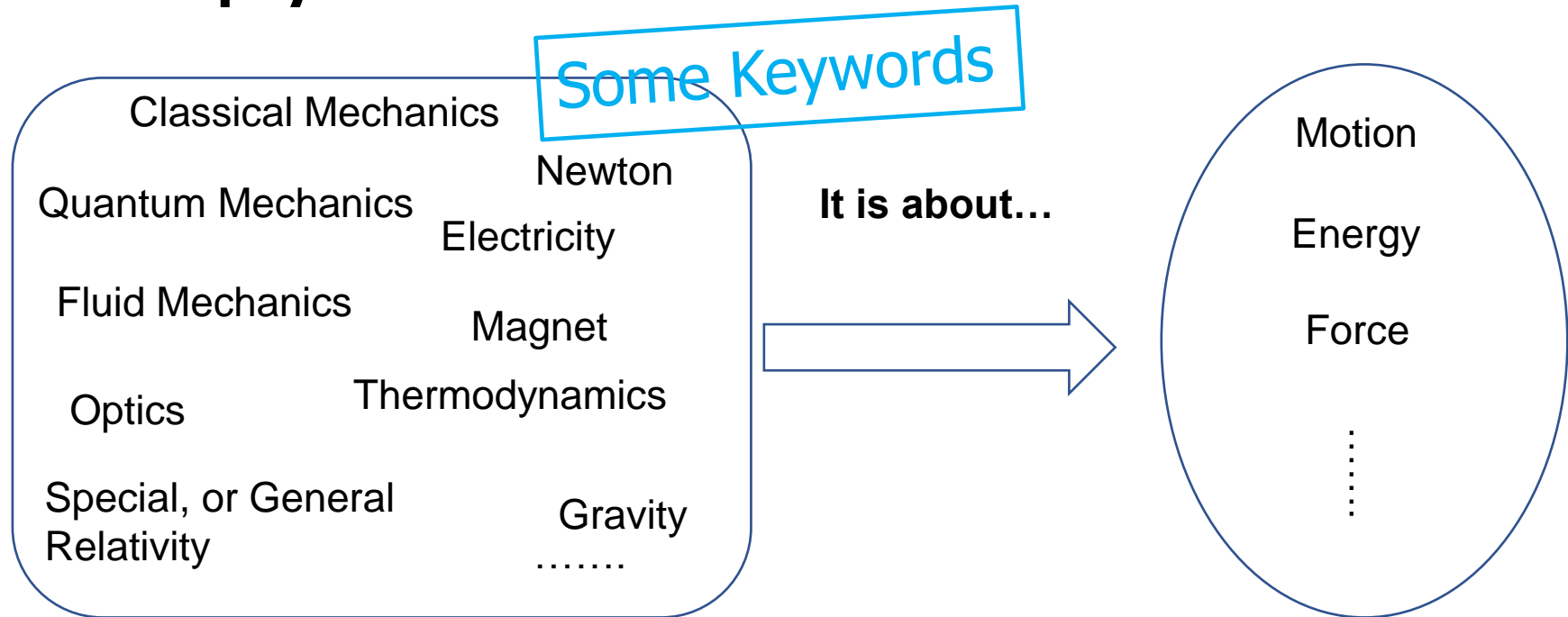
Subjective to be Flexible!

Week	Physics 2 (PHYS 0175)	Topics	Assignment
Week 1 (3/8-3/12)	Introduction & Chap 1		
Week 2 (3/15-3/19)	Chap 2&Chap 3	Syllabus & Measurement	
Week 3 (3/22-3/26)	Chap3 &Chap 4	Motion, Vectors	HW1
Week 4 (3/29-4/02)	Chap4 &Chap 5	Motion in Two and Three Dimensions	HW2
Week 5 (4/05-4/09)	Chap 5 &Chap 6	Force and Motion—I	HW3
Week 6 (4/12-4/16)	Chap 6 &Review		HW4
Week 7 (4/19-4/23)	Chap 6 & Mid Term 1	Force and Motion—II	
Week 8 (4/26-4/30)	Chap 7 &Chap 8	Kinetic Energy and Work	HW5
Week 9 (5/03-5/07)	Chap 8 & Chap 9	Potential Energy and Conservation of Energy	HW6
Week 10 (5/10-5/14)	Chap 9	Center of Mass and Linear Momentum	HW7
Week 11 (5/17-5/21)	Chap 10	Rotation	
Week 12 (5/24-5/28)	Chap 10 & Review		HW8
Week 13 (5/31-6/04)	Chap11 & Mid Term 2	Rolling, Torque, and Angular Momentum	
Week 14 (6/07-6/11)	Chap11		HW9
Week 15 (6/14-6/18)	Chap 11 & Chap 12	Equilibrium and Elasticity	HW 10
Week 16 (6/21-6/25)	Chap 12 & Chap 13	Gravitation	HW11
Week 17 (6/28-7/02)	Chap 13		
Week 18 (7/05-7/09)	Final week		

3. Introduction of Physics

- What is physics and Why need Physics
- Scope of Physics & What is Classical Mechanics

• What is physics ?



“Physics” → “Study how the object moves, stops, stays, behaves, or interact..... ”

So, “Physics” is fundamental to Engineering ? also Science ?

3. Introduction of Physics

- Why “Physics” is fundamental to Engineering ?

→ Because it describe fundamental interactions between objects and motion of objects in Engineering

- Mechanical Engineering : Massive objects
- Electrical Engineering : Charged objects
- Material Science and Engineering : i.e. Complicate, or newly formed objects
- Industrial Engineering : Application of basic engineering subjects
-

Interaction
→ Forces!

**- So, “Physics” is Everything?,
But Why still study Engineering?**

3. Introduction of Physics

- So, “Physics” is Everything?, But Why still study Engineering?

→ Yes, Physics is fundamental to Engineering,
However, we can not solve more than two-body problem completely
and in reality, the Nature is “Many-body problem”,
& Engineering is also Application of Physics !!

- What we can do ?

→ One way is to propose “Macroscopic ,or Microscopic Models” and
confirmed by Experimental Results and Calculations → Suggest New
Phenomena → Discover them, or correct them by experiments → New Models
→ Suggest New Phenomena.... →

→ This is also the “Physics Way of Thinking” and ask to learn this

***Make sure : What you know, or don't know !!,
Can explain to others!!***

3. Introduction of Physics

By Elon Musk,

after a question of “How can you be such a creative person”

→ Learn **“Physics”**



*“Physics” is basic for Engineering,
and also for the way of thinking
for....*



3. Introduction of Physics

- **Scope of Physics & What is Classical Mechanics**

- What is Classical Mechanics ?
- Elementary Particle in Nature and its basic property
- Four Fundamental forces in Nature
- Physics Theory (Classical, Modern)

-What is Classical Mechanics ?

- “Physics” (‘Motion’) of the **Massive** particles/objects
- Followed by **Newtonian Laws**
- Influenced by **Gravitational Force**

What is “mass”(property), “Newtonian”(Law) and “Gravitational”(Force) ?