

Tamkang University Academic Year 110, 1st Semester Course Syllabus

Course Title	ELECTROMAGNETIC PHYSICS LAB.	Instructor	
Course Class	TSPBB2B DEPARTMENT OF PHYSICS (SECTION OF APPLIED PHYSICS), 2B	Details	<ul style="list-style-type: none">◆ General Course◆ Required◆ 1st Semester
Relevance to SDGs	SDG4 Quality education		
D e p a r t m e n t a l A i m o f E d u c a t i o n			
<p>I . Conveying professional knowledge: Teach the students to learn the core knowledge of physics, to obtain the basic skills needed for physics research, and to apply the professional knowledge to physics related technologies.</p> <p>II. Analyzing and solving problems: Guide the students to analyze problems, and to acquire the mathematical ability to quantify conceptual models and also the capability needed to think and to innovate in solving various scientific and engineering problems.</p> <p>III. Training for experimental techniques: Teach the students on how to carry out and to verify various experiments, and at the same time to have the mentality of working cautiously and the awareness in operating safely.</p> <p>IV. Expressing personal characteristics: Help the students to use their personal characteristics, like resolution, sincerity, and concentration, plus their professional skills to gain recognition among the executives and their peers.</p> <p>V. Cultivating team spirit: Train the students to have the organizational ability and the communicational skills to let them have the adaptability to integrate into a professional team, and to obtain the ability to bring out and to put to use the strength of the team to solve professional problems.</p> <p>VI. Building international views: Comply to the trends of globalization to build an international learning environment and opportunities in order to educate the students to continue in their self-advancements, to absorb new worldwide knowledge, and to become a professional with international views in their future perspective careers.</p>			
Subject Departmental core competences			
<p>E. To practice the actual handling of physics problems, and to have the ability to analyze and to interpret experimental data.(ratio:50.00)</p> <p>H. To have the spirit and capability in team cooperation.(ratio:50.00)</p>			
Subject Schoolwide essential virtues			
<p>5. Independent thinking. (ratio:50.00)</p> <p>7. A spirit of teamwork and dedication. (ratio:50.00)</p>			

Course Introduction	This course provides a series of electromagnetic experiments. Emphases of these experiments are placed on understanding of electromagnetic principles, experimental operation, data collection, data analysis, curve fitting and plotting with computers. Details about the experiment content and procedures will be explained in the class.
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The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

- I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.
- II. Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.
- III. Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	1. Students can understand experiment content and principles, and have ability to analyze and to interpret data. 2. Students can operate apparatus and perform experiments.	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	EH	57	Lecture, Discussion, Practicum, Imitation, problem solving	Testing, Practicum, Report(including oral and written), Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	110/09/22 ~ 110/09/28	Lab instruction	
2	110/09/29 ~ 110/10/05	Coulomb's law, capacitance, and capacitor	
3	110/10/06 ~ 110/10/12	Charged particle in electric fields and the cathode-ray tube	

4	110/10/13 ~ 110/10/19	Electric force and electric field of charged sphere and plate	
5	110/10/20 ~ 110/10/26	Electric circuit with capacitors: capacitive reactance, electrical impedance, and phase	
6	110/10/27 ~ 110/11/02	Electric circuit with inductors: inductive reactance, electrical impedance, and phase	
7	110/11/03 ~ 110/11/09	Presentation of the proposal for the semester project	
8	110/11/10 ~ 110/11/16	Review of the experiments	
9	110/11/17 ~ 110/11/23	Midterm Exam Week	
10	110/11/24 ~ 110/11/30	Hands-on exercise and progress report of the semester project	
11	110/12/01 ~ 110/12/07	Hands-on exercise and progress report of the semester project	
12	110/12/08 ~ 110/12/14	Hands-on exercise and progress report of the semester project	
13	110/12/15 ~ 110/12/21	Hands-on exercise and progress report of the semester project	
14	110/12/22 ~ 110/12/28	Hands-on exercise and progress report of the semester project	
15	110/12/29 ~ 111/01/04	Hands-on exercise and progress report of the semester project	
16	111/01/05 ~ 111/01/11	Project presentation	
17	111/01/12 ~ 111/01/18	Final Exam Week	
18	111/01/19 ~ 111/01/25		
Requirement			
Teaching Facility		Computer, Other (lab equipments)	
Textbooks and Teaching Materials		Electromagnetism Experiments (I) -- Dept. of Physics, Tamkang University 電磁學實驗(上) -- 淡江大學物理系出版	
References			

Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	<p>◆ Attendance : % ◆ Mark of Usual : 20.0 % ◆ Midterm Exam : 20.0 %</p> <p>◆ Final Exam : 20.0 %</p> <p>◆ Other <project and reports> : 40.0 %</p>
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php.</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>