The Hong Kong University of Science and Technology
PHYS1115 syllabus

Course Title: **Laboratory for General Physics II**

Course Code: PHYS1115

Credit Points: 1

Instructor (s)

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Pre-requisite: NIL

Co-requisite: PHYS 1114 or PHYS 1314

Exclusion: NIL

Course Description

Brief Information/Synopsis: A laboratory course to accompany PHYS 1114/1314. Experiments in static and current electricity and magnetism, and optics are chosen to illustrate the experimental foundations of physics presented in the lecture courses.

Experiments:

EM1	Coulomb's Law
EM2	Capacitance and Electrostatic Energy
EM3	Coulomb Constant
EM4	DC Circuits
EM5	Magnetic Field Generated by a Coil
EM6*	The Current Balance
EM7	Introduction to the Oscilloscope
EM8*	Faraday's Law of Induction
EM9	AC Circuits
O1*	Single-slit Diffraction and Double-slit Interference

* Report Summary required

Intended Learning Outcomes

Upon successful completion of this course, students should be able to

No.	*ILOs*
1	conduct experimental investigations of simple electric, magnetic and optical phenomena discussed in the lab manual;
2	carry out measurements with proper techniques and safety practices;
3	build and practice teamwork skills through group projects;
4	practice record keeping of experimental work and data graphing;
5	analyze data using simple statistics and compare the results with theory;
6	write a summary to explain the theoretical background and major experimental achievements and findings.

*Assessment marks for individual assessed tasks will be released within one week of the due date.

Assessment, grading and mapping the course ILOs to assessment tasks:

Percentage of coursework, examination, *etc*.:

Assessment	Assessing Course ILOs	**Explanation**
30% by lab performance	1-4	These tasks assess student's performance in the laboratory
60% by lab reports	4-6	These include pre-lab questions, result and data analysis and post lab questions. These tasks assess student's ability to make careful observations and clear presentation and inference from data

5% by report summaries	4-6	This task assess student's ability to summarize experimental findings with clear, logical presentation and writing skills.
5% by IPRS	4-5	These tasks assess student's understanding of the concepts taught in the tutorial

Grading Rubrics

Problems in the assessment tasks are graded based on correctness of the answers.

Final Grade Descriptors:

Grades	**Short Description**	**Elaboration on subject grading description**
A	Excellent Performance	Demonstrates a thorough understanding of the experimental objectives and procedures. Presents data in a clear, organized manner, effectively highlighting key trends and relationships with effective use of tables, graphs, or other visualizations. Exhibits a high level of self-reliance in troubleshooting and solving any experimental problems that arise. Utilizes equipment correctly and follows instructions with precision, completing all assigned tasks. Fully participates in the experiment, actively collaborating with lab partner and contributing ideas. Demonstrates an exceptional commitment to lab safety protocols and leaving the workspace clean.

		*[Typical overall course grade: above 80 points out of 100 points]
B	Good Performance	Exhibits good grasp of the experimental objectives and procedures. Presents data in a clear and organized fashion, with effective use of tables, graphs, or other visualizations. Shows initiative in solving minor experimental problems, with minimal assistance. Correctly uses equipment and follows instructions, completing all assigned tasks. Actively participates in the experiment, cooperating well with lab partner. Adheres to lab safety guidelines and ensures the workspace is clean at the end of the session. *[Typical overall course grade: between 65 points and 79 points out of 100 points]
C	Satisfactory Performance	Demonstrates a general understanding of the experimental objectives and procedures. Makes relevant observations, but some details may be missing or not fully explained. Presents data in an organized manner, with adequate use of appropriate visualization tools. Requires occasional guidance in troubleshooting experimental issues. Correctly uses equipment and follows instructions, completing most assigned tasks. Participates in the experiment, contributing to the overall work with lab partner. Follows lab safety protocols and helps maintain the cleanliness of the workspace.

		*[Typical overall course grade: between 55 points and 64 points out of 100 points]
D	Marginal Pass	Shows a basic grasp of the experimental concepts, but with some gaps in understanding. Observations are limited or lack important details. Data presentation is functional but lacks clarity or organization. Requires frequent assistance in solving experimental problems. Occasionally struggles with using equipment correctly or following instructions but completes most assigned tasks. Participates in the experiment, but contribution to the work with lab partner is minimal. Generally, follows lab safety guidelines but may need reminders. *[Typical overall course grade: between 40 points and 54 points out of 100 points]
F	Fail	Demonstrates inadequate understanding of the experimental objectives and procedures. Observations are incomplete or inaccurate, with significant details missing. Data presentation is unclear or absent, making it difficult to interpret the results. Relies heavily on instructor guidance and is unable to solve experimental problems independently. Struggles to use equipment correctly or follow instructions, leaving assigned tasks incomplete.

		Participates minimally in the experiment and does not contribute effectively to the work with lab partner. Disregards lab safety protocols and fails to maintain the cleanliness of the workspace. * Must complete 8 experiments to pass this course. *[Typical overall course grade: below 40 points out of 100 points

*The final grade will be assessed using criterion-referencing. The final grade reflects the criteria that students achieved in the course.

Course AI Policy

The use of generative artificial intelligence (AI) to obtain pre-lab and post-lab answers to questions in lab reports is NOT allowed in this course.

Communication and Feedback

Assessment marks for individual assessed tasks will be communicated via Canvas within one weeks of submission. Students who have further questions about the feedback including marks should consult the instructor within five working days after the feedback is received.

Resubmission Policy

Submission of lab reports after the due date will not be considered. Zero mark will be given for late submissions of the tasks.

Required Texts and Materials

A. Tutorial notes, supplementary materials, a booklet of lab manuals, and a booklet of lab reports are provided by the teaching lab
B. Course canvas homepage

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Academic Integrity | HKUST – Academic Registry for the University's definition of plagiarism and ways to avoid cheating and plagiarism.