TEACHING PLAN

1. Course Name	Physics Laboratory IV
2. Course Code	PHY207
3. Credit Value	1
4. Academic Session	2022/04
5. Lecturer(s)	Chung Fei Fang/Siti Khatijah Binti Md Saad
6. Tutor(s) (if any)	
7. Course Learning Outcomes (CLO)	At the end of the course, students will be able to: 1. Adapt an experimental setup to investigate physical problems or scenarios.(P5, PLO3) 2. Work together in pairs or a group to plan, setup and implement the experimental investigation.(A3, PLO4) 3. Qualify the methodology and veracity of experimental findings via written reports and viva voce.(A5, PLO5) 4. Construct charts and graphs using graphical software for the analysis of experimental findings.(P4, PLO6) 5. Organize a functional team with diverse roles to tackle different aspects of the experimental investigation.(A4, PLO8)
8. Sequence of planned lessons	**Topics**
Week 1	**Online meeting** **Introduction to the course and Project** - Spectroscopy and its applications. - Preparation of materials. - Suggestions: 1. Determine the grating constant for different brands of cd or dvd. 2. Beer-Lambert Law 3. Measurement of Planck's constant 4. Absorption spectrum 5. Solar Spectrum
Week 2	Online meeting Microsoft Teams Group meeting 1(~ 30 minutes) - Hosted by each group in English - To brainstorm the project direction - To distribute the work
Week 3	Online meeting Introduction to - Error analysis - Scientific report writing * Each group should have got the essential parts for the project. * Each group can add on any tools or devices subjected to the budget.
Week 4	Online meeting Microsoft Teams Group meeting 2(~ 30 minutes) -Hosted by each group in English - Finalized the project direction with a preliminary design
Week 5	Progress Report -hosted by the lecturer -Students should have all the essential parts and a preliminary design. - Online meeting
Week 6	Microsoft Teams Group meeting 3(~ 30 minutes) -Hosted by each group

	- Work in the laboratory.
Week 7	Progress Report-hosted by the lecturer -Students should have all the essential parts and a preliminary design. -Work in the laboratory.
Week 8	Midterm proposal presentation -Students should have a prototype with some preliminary data -Work in the laboratory.
Week 9	Microsoft Teams Group meeting 4(~ 30 minutes) -Hosted by each group in English -Work in the laboratory.
Week 10	Progress Report-hosted by the lecturer -Students should have data obtained from their experiment for further analysis.
Week 11	Microsoft Teams Group meeting 5(~ 30 minutes) Hosted by each group in English -Work in the laboratory.
Week 12	Progress Report-hosted by the lecturer Students should have a draft for their final presentation and report. -Work in the laboratory.
Week 13	Microsoft Teams Group meeting 6(~ 30 minutes) -Hosted by each group in English -Either online or physical.
Week 14	Final presentation -Students should present their final product with conclusive data
Week 15	Final report submission

9. Required Materials (including equipment & technology)

No.	List of Practical Activities
1.	**Activities:** • DIY spectrometer. **Laboratory:** • Physics Lab/ Home **Materials/ Software used:** • Pi Pico board and sensors, webcam/Python/ Matlab
2.	
3.	

10. Assessments

Continuous Assessment	**100%**
• Instructor's observation	40%
• Lab report	30%
• Viva Voce	**30%**
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11. Assessments that align to Course Learning Outcomes (CLO)

Assessment	CLO 1	CLO2	CLO3	CLO4	CLO5
Continuous Assessment					
• Instructor's observation	√	√			√
• Lab report			√	√	

	• Viva Voce			√		√
12. Main Reference(s)	H. D. Young and R. A. Freedman, “University Physics with Modern Physics 14ed,” Pearson, (2015) Giovanni Organtini, "Physics Experiments with Arduino and Smartphones" Springer(2021), ISBN 978-3-030-65140-4					
13. Additional Reference(s)	•					