

Course Code	PHYS8001 (RPG)		
Title	Selected Topics in Computational Modelling and Data Analysis in Physics		
Offering Department	Physics		
Course Co-ordinator	Prof X D Cui Physics		
Course Co-ordinator Email	xdcui@hku.hk		
Teachers Involved	Name	Department	Percentage
	Various teachers in the department	Physics	100
Course Objectives	This course aims to familiarise students with research oriented techniques in computer modelling and data analysis.		
Course Contents & Topics	Topics include: 1. Advanced techniques, with emphasis on recently developed techniques, in branches of experimental physics 2. Data analysis and computer modelling relevant to experiments Topics in condensed matter physics and the physics of materials will predominate but other fields such as nuclear physics, astrophysics etc. will also be featured from time to time.		
Course Learning Outcomes (CLO)	On successful completion of this course, students should be able to: CLO 1 have a comprehensive overview of topics in computational modelling and data analysis in physics CLO 2 understand the basic concepts, research oriented techniques and research advances in computational modelling and data analysis in physics CLO 3 apply knowledge in understanding computational modelling and data analysis in physics		
Pre-requisites (and Co-requisites and Impermissible combinations)	Nil		
Offer in 2026 - 2027	Y 1st sem 2nd sem	Examination	Dec May
Course Grade	A+ to F		
Grade Descriptors	A: Demonstrate thorough mastery at an advanced level of extensive knowledge and skills required for attaining all the course learning outcomes. Show strong analytical and critical abilities and logical thinking, with evidence of original thought, and ability to apply knowledge to a wide range of complex, familiar and unfamiliar situations. Apply highly effective organizational and presentational skills. B: Demonstrate substantial command of a broad range of knowledge and skills required for attaining at least most of the course learning outcomes. Show evidence of analytical and critical abilities and logical thinking, and ability to apply knowledge to familiar and some unfamiliar situations. Apply effective organizational and presentational skills. C: Demonstrate general but incomplete command of knowledge and skills required for attaining most of the course learning outcomes. Show evidence of some analytical and critical abilities and logical thinking, and ability to apply knowledge to most familiar situations. Apply moderately effective organizational and presentational skills.		

	D: Demonstrate partial but limited command of knowledge and skills required for attaining some of the course learning outcomes. Show evidence of some coherent and logical thinking, but with limited analytical and critical abilities. Show limited ability to apply knowledge to solve problems. Apply limited or barely effective organizational and presentational skills. Fail: Demonstrate little or no evidence of command of knowledge and skills required for attaining the course learning outcomes. Lack of analytical and critical abilities, logical and coherent thinking. Show very little or no ability to apply knowledge to solve problems. Organization and presentational skills are minimally effective or ineffective.		
Course Type	Lecture-based elective course		
Course Teaching & Learning Activities	Activities	Details	No. of Hours
	Lectures		36
	Laboratory		12
	Tutorials		8
	Reading/Self study		80
Assessment Methods and Weighting	Methods	Details	Weighting in final course grade (%)
	Examination		50
	Coursework		50
Quota	9999 (9999 if no quota)		
Required/recommended reading and online materials	Nil		