

Assessment Policy in Department of Physics

The Physics curriculum at CUHK is designed to deliver Physics Program Learning Outcomes (PPLOs) that cover (K) Knowledge, (S) Professional & Generic Skills and (V) Values & Attitude. A full list of PPLOs is given in Appendix A. The learning outcomes of each PHYS course contribute to achieving different components PPLOs, which are summarized in Appendix B.

Assessment is a part of learning activities and is regarded as an effective way to achieve and measure the attainment in learning outcomes, and provide feedback to assist learning. The Department has taken on a variety of modes in order to align with our learning outcomes. An overall assessment scheme is summarized in Appendix C. Assessment methods to course learning outcomes mapping for each PHYS course are given in Appendix D.

1. Assessment methods

1.1 Lecture courses

1.1.1 Written examination

Written examination may include quizzes, tests, mid-term and final examination depending on the course. It is a key component in the assessment among the courses that carry a lecture component. It is an important means to achieve and measure the attainment in subject content, conceptual thinking, problem solving, and analytic skills. It also serves to maintain the competitiveness of our curriculum at an international level. A typical style of our physics examination papers is that there are always some parts in which students are asked to apply taught knowledge to handle new situations. These transferable skills are not only an important part of our programme learning outcomes; they also constitute the high-level thinking skills such as ‘apply’, ‘predict’ and ‘generalize’ that are valued in many education research.

The Department adopts a setter-checker system in setting final examination papers. Prior to the examination, the draft examination paper and suggested solution designed by the course teacher is carefully checked by a colleague, who is assigned by the Department Chair and usually has teaching experience and expertise on the subject.

1.1.2 Homework assignment

Courses with lecture components usually have homework assignments. Apart from standard physics problems involving calculations, homework assignments can include open-ended questions, reading assignments and reports. Depending on the level of the courses and the level of difficulty of the assignments, assignments amount to 15% to 50% of the grade with a norm of about 20%. The number of problem sets and the number of problems in each set also vary depending on the progress of the courses. Homework assignments provide students with more opportunities to think and read, and continuous practices can help them to acquire the mathematical skills. It is also a kind of formative assessment that can provides continuous learning assistance to students, and students would know how much they have learned in taught subjects.

1.1.3 Presentation

Some courses with lecture components may use oral presentation as a part of the assessment scheme. It is an important way to measure students' ability of acquiring knowledge independently and presenting scientific information verbally. The process of preparing presentation provides students with a training of generic skills such as communication skills and time management skills, and hence supporting students in attaining the skills outcomes of PPLOs.

1.2 Laboratory Courses

The assessment modes in Laboratory Courses are specifically designed to be in line with the course and program learning outcomes related to experimental skills, report writing (a kind of communication skills), and some values and attitudes. Students are typically assessed by preparation, laboratory performance, laboratory reports, and test on specific skills. The TAs will assess each student's in-lab performance that reflects how well the student has prepared for the laboratory and his/her attitude.

1.3 Lecture + Laboratory Courses

There are courses with both lectures and laboratory components. The assessment methods of these courses can be a combination of 1.1 and 1.2 determined by the teachers.

1.4 Project and Seminar Courses

1.4.1 For project courses (PHYS 4610 and 4620), the assessment contains two parts: (1) Continuous assessment by project supervisors (60%), and (2) end of term assessment (40%) by an examination panel formed by the supervisor and two additional examiners. As Project Supervisor observes a student's progress throughout the Term, the continuous performance is evaluated based on the student's ability, attitude, and generic skills. The end of term assessment is based on the project report and oral presentation. Depending on the type of projects, experimental, or theoretical or computational skills, logbook, progress, attitudes, and communication skills are included in the assessment

1.4.2 For Short Experimental Projects (PHYS 3710, 4710, 4711, 4712), assessment is designed to emphasize on skills related to project learning and in particular good practices in an experimental research setting. Unlike courses involving team work (e.g. PHYS 4801), these short experimental projects are for individual students. Each student is required to perform experiments independently and submit a lab logbook, files of raw data, and a final report in the form of a research article in journal format for assessment. In addition, students are required to submit a draft of the report to the teacher for comments before final submission.

1.4.3 For Short Theoretical Projects (PHYS 3810, 4811, 4812), assessment is designed to emphasize on skills in theoretical and/or numerical methods in physics, and the ability of describing and explaining connections between the physical principles and the study problem. Students are required to submit a report and give an (optional) oral presentation for assessment. In addition, students are required to submit a draft of the report to the teacher for comments before final submission.

1.4.4 For Seminar courses (PHYS 4801, 4802) students work in a team to study a topic independently, present their findings and enter discussion with peers. Assessments include different components: Writing an outline and meeting the teacher for comments, preparing a PowerPoint file made available to all students, presentation, raising and handling questions. It is also up to the teacher whether to employ peer assessment.

2. Benchmarking

To ensure standards of assessment, Visiting Committees are invited for benchmarking externally. During Visiting Committees visit to the Department, samples of final examination papers, graded scripts of selected courses, and Final-Year Project reports are examined. The Visiting Committees may also meet the students for possible feedbacks. Comments and suggestions made during the visit are documented and become an important reference for T&L improvements.

3. Assessment panel

All teachers in the Department of Physics are members of the Assessment Panel chaired by the Department Chairperson. The assessment panel has the ultimate responsibility and authority over all matters related to assessment, including but not limited to ensuring that this policy is observed, endorsement of course assessment schemes, determination of assessment results, recommendation of degree honors classifications, consideration of any representations concerning unusual circumstances during the course of student assessment, and handling of grade appeals.

4. Grade descriptors

4.1 Grade descriptors form the basis for criterion-referenced assessment. Each course offered by the Department of Physics has grade descriptors which specify the criteria/ standards against which the performance of student is evaluated, such that assessment can indicate which levels of attainment of the desired learning outcomes for the course concerned.

4.2 In setting the standards of performance at different levels, teachers should consider and decide what standards students can be reasonably expected to meet, and compile the descriptors explicitly by reviewing critically the grade distribution statistics of the courses concerned over the past years and by making reference to the guidelines for defining grade descriptors. Teachers are also advised to approach CLEAR for training and guidelines on the drafting of grade descriptors.

4.3 Grade descriptors are subject to regular review against the actual allocation of grades, and fine-tuning adjustments should be made as appropriate to validate the effectiveness of grade descriptors in capturing students' levels of achievement.

4.4 Students can access the grade descriptors of each courses and course outlines in CUSIS.

4.5 Grade descriptors of PHYS courses are summarized in Appendix E.

5. Marking

5.1 The teacher or course coordinator (who is listed in the time-table) has ultimate

responsibility for the *marking scheme* for each assessment task.

5.2 For courses offered in multiple sections and/ or where scripts are marked by more than one individual, the same detailed marking schemes should be used by all markers, including TAs and part-time teachers. There should not be separate individual marking schemes. Where scripts are marked by a single individual, a skeleton marking scheme would suffice, simply to provide a record in the event of future scrutiny.

5.3 The design of the marking scheme for each assessment task should make reference to the expected learning outcomes and the grade descriptors. The grade “A” should be reserved for truly excellent work that exceeds the level expected for the majority of students.

5.4 The Department should keep samples of grade descriptors and marking schemes for a variety of assessment types for peer scrutiny.

5.5 For laboratory courses. TAs grade students’ laboratory reports based on the guidelines set by the teacher. The teacher inspects samples of graded reports and meets with the TAs to ensure fairness of grading. TAs are required to do the laboratory work before they teach.

6. Examinations

6.1 All required lecture PHYS courses (PHYS 1111, 1113, 1122, 2041, 2051, 3011, 3021, 3022, 3031, 3041, 4031) must have written examinations that count at least 70% of the overall score. Written reports or term papers are not considered as written examinations.

6.2 Except for certain types of assessment tasks e.g. group discussion/ oral presentation, guided projects, where student anonymity is impossible, all examination scripts (including midterm examinations or quizzes) should not display student names and should be graded without using student names.

6.3 Course teaching staff and/or invigilators who administer the mid-term tests/ examination should observe the guidelines by Registration and Examination Section as far as possible.

7. Moderation of marks and grading criteria

7.1 The assessment panel would monitor grade distribution of courses.

7.2 For project courses PHYS 4610 and 4620 typically supervised by one teacher, each student should be assessed by an examination panel which consists of the supervisor and two other teachers. The examination panel provides as an internal moderation in order to achieve a fair and transparent assessment of student’s work.

8. Group projects and peer assessment

8.1 For group projects, the assessment should include an overall evaluation of the group performance as a whole by giving an equal rating applicable to all group members. In addition,

assessment on individual performance should constitute at least 15 percent of the total assessment according to the University guideline.

8.2 For the use of peer assessment, the purposes and learning outcomes of peer assessment must be clearly communicated to students, and the assessment criteria should be articulated in the form of guidelines or rubrics with defined tasks for the student assessors. To ensure fairness, the process should be closely monitored by the course teachers (e.g., requesting student assessors to provide justification for their assessment). Peer assessment, if adopted, should contribute to no more than 25 percent of an individual assessment task and 15 percent of the total assessment according to the University guideline.

9. Academic honesty

9.1* The University places very high importance on honesty in academic work submitted by students, and a set of policy (<http://www.cuhk.edu.hk/policy/academichonesty/>) in place as the University-wide guidelines against academic dishonesty at all levels of studies. The policy also applies to open-book examinations.

9.2 For each courses offered by the Department, students are required to submit form(s) of Declaration of Honesty of Academic Work relevant to the types of assessment at the beginning of the Term. They include: (1) Take-home assignment (homework) type, and (2) project or seminar type.

9.3 Project or guided study involving any form of literature-review component, the reports should be submitted through the University's proprietary plagiarism detection tool, *VeriGuide*, and that any possible cases flagged are properly attended to.

9.4* The Department follows the University's policy of zero tolerance on plagiarism and cheating in examinations. Teachers should report all cases of suspected plagiarism or cheating to their respective Faculties, and those cases will then be dealt with by the disciplinary committee concerned and/ or the Senate Committee on Student Discipline for possible disciplinary actions in accordance with the University regulations. The penalties include deduction of marks, demerits, suspension of study and termination of studies.

9.5 Course examinations should be scheduled, invigilated and monitored by panels of examiners set up by the departments concerned or centrally. The procedures should follow the Guidelines on examination and invigilation in the University document (Appendix E). For examinations that are not centrally scheduled, the teacher in charge should follow similar procedures (Appendix E) on invigilation to ensure objectivity and fairness.

10. Combining marks

Marks from different assessment tasks are combined to obtain the total marks. Teachers should look into the spread of the scores for each component. A very narrow spreads in any tasks should prompt a reconsideration of assessment tasks and the expected outcomes to accommodate a broader range of levels of challenges.

11. Awarding grades

11.1* The final grades awarded to students in a course should reflect their individual achievements criterion-referenced to the course learning outcomes, in the spirit of OBA, as defined in the grade descriptors.

11.2 The grades recommended to students in a course are provided by the course teacher based on the grade descriptors. The Assessment Panel would review the recommendation and make the final decision of grade awarded to students.

11.3 For all undergraduate PHYS courses with written examination components (such as midterm, quiz, and final examination) counting totally more than or equal to 70% of the total score, students who score less than 20% of all the written examinations combined are failed, except for cases exempted by the Assessment Panel. This rule does not apply to PHYS service courses and PHYS courses that mainly involve teaching and learning in laboratories.

11.4 Statistics on grade distribution at individual course-, programme- and faculty-levels can be generated by individual programmes/ Faculties through CUSIS after the grade appeal period in each academic term.

11.5 In case of grade inflation/deflation, the assessment panel should review the assessment processes of the course concerned. The Chairperson of the Programme could take appropriate action to maintain the standard of the curriculum.

12. Honors classification

12.1* A student who has satisfied the conditions for graduation shall be awarded a Bachelor's degree in one of the following classifications: First Class Honours, Second Class Honours Upper Division, Second Class Honours Lower Division, Third Class Honours, and Pass.

12.2 The honours classification of an undergraduate degree awarded by the University is determined at the time of graduation, as recommended by the Assessment Panel of Major programme concerned for endorsement at Faculty level, subject to certain conditions as stipulated in the University's guidelines and regulations for determining honours classifications.

13. Feedback to students

13.1 For homework assignments and lab reports, a "turn-around" time of no more than two weeks from the submission deadline is set.

13.2 For other type of assignments, the "turn-around" time of no more than four weeks from the submission deadline, depending on the nature and complexity of work involved. This "turn-around" time for each assignment/ assessment task should be included in course outlines for students' information, and feedback on assignments provided to all students by various means.

13.3 TAs are required to provide constructive comments in grading student's homework rather

than simply marking right or wrong answers.

13.4 For courses mainly involving students' presentation (PHYS 2510, 2520, 4810 and 4820), the teacher should provide comments and suggestions during the class. For PHYS 4810 and 4820, students are required to discuss with the teacher on the abstract and outline of their work at least one week before the presentation.

13.5 For PHYS 4610 and 4620, project supervisors and examiners may provide a written feedback to students on the grade sheets that are released to students after the examination.

13.6 Students can review their examination scripts within two weeks after the grade is released. During this period, students can look at (but not take away) their scripts and discuss with teachers if necessary. The purpose of allowing students to review their examination scripts is for educational benefits, it is not an opportunity to appeal.

13.7 A sample of examination scripts and other student work that substantially contribute to final grades should be archived for possible future scrutiny by Visiting Committee or programme review panels. The original or electronically-scanned sample examination scripts and copies of student work is kept at the department/ programme office for onsite review by Visiting Committee or programme review panels, and should only be disposed of or returned to students after the reviews have been conducted.

14. Appeals

14.1* Students who have a query on the grade given for any courses should consult the teacher(s)/ assessment panel concerned within two weeks upon the release of academic results for the relevant term by the Registry/ Graduate School.

14.2* In the event that a student, after consulting the teacher(s)/ assessment panel concerned within the specified period, has reasonable grounds to believe that there is procedural impropriety in determining grades or other academic issues resulting in her/ his having been directly affected, s/he can lodge a complaint with the University, in accordance with the Procedures for Handling Student Complaints, for an independent investigation into the matter.

*From the University document on "Policy on Assessment of Student Learning in Taught Programmes"