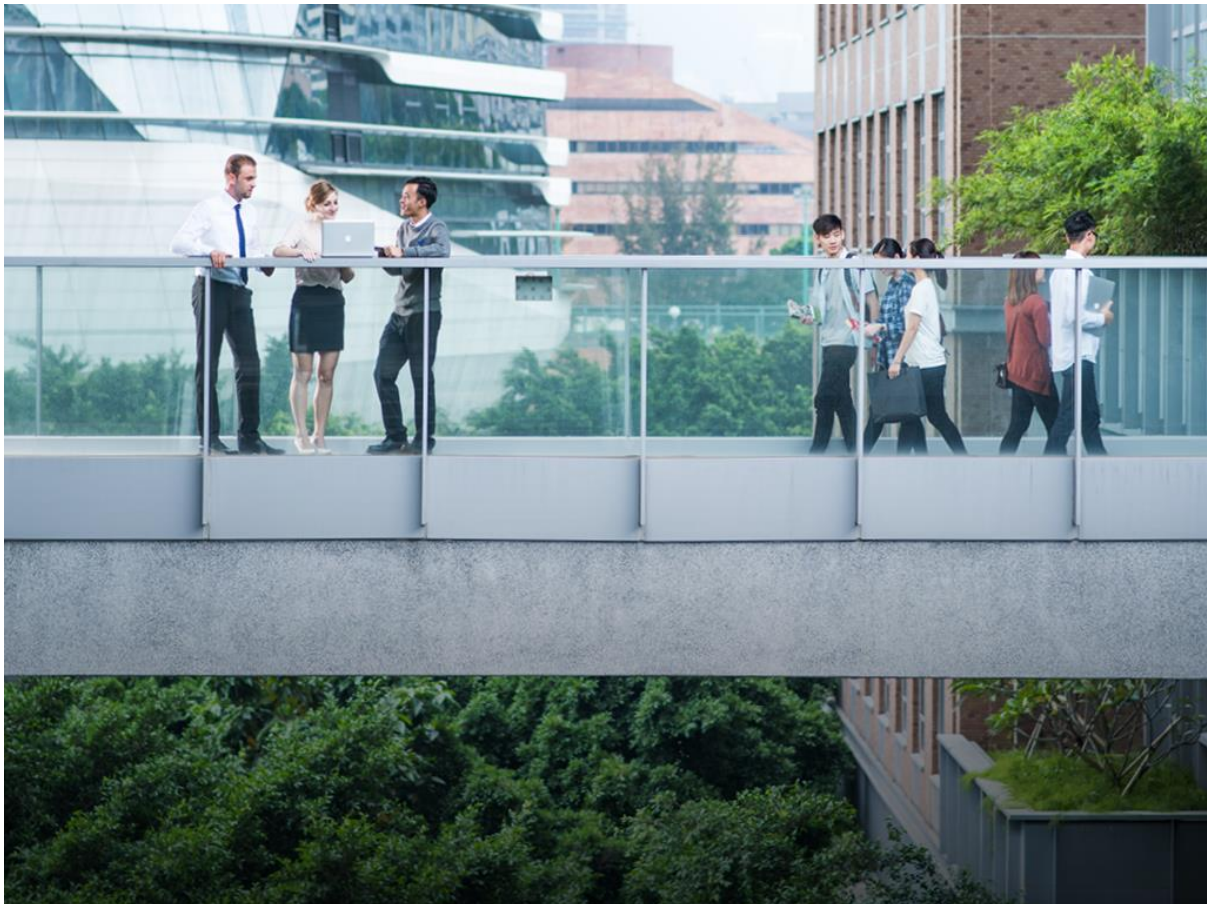


Progress Report

To the Quality Assurance Council on the
Follow-up to the Quality Audit 2016

August 2018



Opening Minds • Shaping the Future
啟迪思維 • 成就未來

Preamble

The Hong Kong Polytechnic University (PolyU) would like to take this opportunity to express its gratitude to the Quality Assurance Council (QAC) for the quality audit and thank the Audit Panel again for the positive review and constructive comments. As a self-accrediting university, PolyU welcomes the opportunity offered by exercises such as QAC quality audits for a comprehensive, third-party evaluation of the University's educational operations, which proves to the public that PolyU has indeed been providing education at a level that is on a par with international standards and that Hong Kong people can have confidence in and be reasonably proud of. Moreover, the audits have served as catalysts for the further and continuing refinement of our educational provision, quality assurance practice and quality enhancement culture. In the action plan submitted to the QAC in May 2018, PolyU identifies 11 areas for improvement, each addressing one or more of the recommendations, affirmations and suggestions/comments made by the Audit Panel. Issue owners at the senior management level were engaged in formulating the follow-up actions and setting the implementation timeline. This progress report provides an update on the implementation of the action plan. A summary of the progress is provided in Appendix 1.

In addition to following up on the findings of the quality audit, PolyU is also moving forward as a university as one strategic plan cycle came to an end and another is about to begin. The 2012-2018 cycle concluded with many remarkable achievements. The transition to the four-year undergraduate degree structure was executed successfully. Service-Learning was introduced and became a distinguished feature of our undergraduate curriculum. Offshore work-integrated education opportunities increased. Several capital campus development projects including the Jockey Club Innovation Tower were completed. The library was revitalised into a thriving learning hub. Teaching development provision was expanded both in breadth and in depth. Learning and teaching development projects continued to thrive. Playing host to 14 inter-institutional teaching and learning related projects, PolyU's contribution to sector-wide development was substantial. The excellence of PolyU teachers received recognition locally and internationally, including winning four UGC Teaching Awards. PolyU's reputation in the world of massive open online courses (MOOCs) grew and became the first Asian university to be accepted as a Contributing Charter Member of edX. The University's ranking reached new heights. PolyU moved up to the 6th position on the Quacquarelli Symonds 'Top 50 under 50' list in 2015. The School of Hotel and Tourism Management ranked top in ShanghaiRanking's global ranking of academic subjects in 2017.

Building on the success, the University's strategic plan for 2019-2025 reaffirms our aspiration to become one of the region's top universities for teaching and learning, research and knowledge transfer; and the vision and mission statements were revisited and refined to align with this ambition. All stakeholders, including staff, students, alumni and Council and Court members, were involved in the strategic planning exercise. Entitled 'Shaping the Future', the new strategic plan recognises the role of universities in transforming lives and changing the world. It sets as its overarching learning and teaching objective to nurture holistic professionals for the future. Seven strategic priorities have been identified: (1) instilling in students the desire to learn and strengthening their ability to 'learn to learn'; (2) enhancing the student learning experience through the use of interactive pedagogies; (3) transforming physical and virtual learning spaces to facilitate new teaching and learning pedagogies; (4) providing a supportive environment for students to review and reflect on their learning; (5) preparing ourselves for the onset of digital transformation in tertiary education; (6) continuing to enhance the quality of

undergraduate degree programmes; and (7) creating a culture conducive to valuing teaching and learning and to motivating teachers to excel. The 2018/19 academic year is considered a gap year, during which preparatory work for the key strategic initiatives will be launched. The spirit of quality enhancement will no doubt be at the heart of our implementation of the new strategic plan and will continue to be the driving force behind our teaching and learning initiatives for years to come.

Implementation of Action Plan

The action plan as submitted to the QAC in May 2017 has largely been adhered to. Of the 23 action items that were scheduled for completion by the end of the 2017/18 academic year or before, 22 have been completed (Appendix 1). Only the revision of the Senate's terms of reference has required a slightly extended timeline as further deliberation was deemed necessary when the recommendation was being finalised (Section 1.2).

1 Articulate the Senate's responsibility for academic standards more formally

Recommendation

While it was clear that in practice Senate does approve significant academic developments, such as the framework for outcomes-based RPg programmes, the Audit Panel noted that Senate's terms of reference do not explicitly mention academic standards. The Audit Panel therefore recommends that the University articulate more formally Senate's responsibility for academic standards. [Para 2.5, Page 9]

- 1.1 The University welcomes the Audit Panel's confirmation that Senate has been performing significant functions in relation to academic standards and agrees with the Panel that such responsibilities can be articulated more formally in the Senate's terms of reference. In accordance with the action plan, a task force led by the Deputy President and Provost has been set up to review the Senate's terms of reference. The task force will also review the terms of reference and composition of the Senate committees and the logistics and mode of operation of the Senate for upholding academic standards.
- 1.2 The review is envisaged to consist of two stages. The first stage, which is about to conclude, focuses on the revision of the terms of reference. Desktop research has been conducted to see how other universities articulate Senate's responsibilities in assuring academic standards in their Senate's terms of reference. The terms of reference of PolyU Senate and its committees have been examined in relation to the committees' respective functions in setting and maintaining academic standards. The delegation of powers to the Senate committees and their role differentiation has been clarified and formally articulated. Based on the above, revisions to the terms of reference of the Senate and its committees are being formulated. The task force is in the process of finalising its recommendation. The final recommendation will be ready for consideration for approval later this year. The second stage of the review, which goes beyond the Audit Panel's recommendation, will focus on the logistics and mode of operation of the Senate. The review is expected to be brief and will be completed by the end of 2018. In line with the action plan, the implementation of the new terms of reference and logistical arrangements will be reviewed by the end of 2019.
- 1.3 The review did not hold up the University's continuous effort in refining its academic governance structure. Two Senate committees with key roles in assuring academic standards, the Academic Planning Committee (APC) and the Academic Regulations Committee (ARC), were merged in 2017 to enhance the synergy between the programme planning and implementation processes. The new committee, Academic Planning and Regulations Committee (APRC), will advise the Senate, inter alia, on both initial programme proposals and academic policies and regulations on admission, progression

and assessment of students and for granting of awards for all taught programmes. In 2018, the terms of reference of the Quality Assurance Committee (Academic Departments) (QAC(AD)) were revised to reflect its new role in assuring the standards and quality of Continuing Education courses. The Senate's capacity for managing academic standards and quality is enhanced as a result of these developments.

2 Strengthen the role of Departmental Academic Advisors (DAAs) with respect to commentary on academic standards

Recommendation

The Audit Panel endorses the steps PolyU is taking to enhance the DAA system and further recommends that the University identify and implement the means by which the University can obtain regular and comprehensive external comment on academic standards and student achievement. [Para 2.13, Page 11]

- 2.1 Academic programmes at PolyU are governed by a robust quality assurance system characterised by outcome-based approach, multi-level monitoring, built-in external input and evidence-based improvement. The DAA system is one of the key mechanisms through which the academic standards and quality of our programmes are externally benchmarked (see also R3). DAAs are high-standing academics in relevant disciplines from reputable institutions. They visit the department on a regular basis to monitor and maintain the standard of all departmental academic functions and advise on all aspects of the department's work. Continuous enhancements have been made to DAA system. For example, prior to the audit in 2016, we were in the process of reinforcing the DAA's role in moderating subject level assessments. Such steps for enhancing the DAA system have met with the Audit Panel's approval.
- 2.2 Following the audit, the University undertook an in-depth review of the DAA system in the light of the observations and recommendations made by the Audit Panel and revamped the system with a view to addressing the issues identified. The Audit Panel observed that there may be occasions in which the DAA may lack the expertise to comment on certain subjects within the department and noted that the departments have been empowered to appoint more than one DAA on such occasions, and that several departments have done so. Since most departments have appointed additional overseas academic advisors (OAA) for the Departmental Review, it was decided that the most effective way to cater for the range of subject disciplines within the same department would be to combine the functions of DAA and OAA under one system. The relevant guidelines have been revised to this effect.
- 2.3 Regarding the observation that DAA reports are variable and do not necessarily include comments on academic standards every year, two possible causes were identified. One was that the requirement to comment on academic standards was not sufficiently explicit; another was that the scope of duties to be performed by DAA was too large. Consequently, some DAAs might have tended to be selective in their focus and could have chosen not to comment on the academic standards of the programmes and subjects when they did not find anything alarming to comment on. The DAA system has been subsequently revamped so that:

- (a) The duty list for DAA/OAA is substantially reduced to focus on the international benchmarking of quality assurance process, academic programmes and subjects, and teaching, learning and assessment practices.
- (b) The requirement to comment on academic standards of programmes and their constituent subjects is explicitly stated;
- (c) A standard report template is introduced to ensure that the DAA/OAA will comment on all of the essential aspects of the department's work in every review.

2.4 The above changes were thoroughly discussed by the Academic Council with the involvement of the Deans and Heads of Departments. Revisions to the relevant sections of the *Handbook on the PolyU's Quality Assurance Framework, Mechanisms and Processes for Academic Departments (PPVM)* (Appendix 2 and 3) have been endorsed by the QAC(AD) and are now pending final approval by the Senate.

3 Require Departmental Review (DR) to comment on the “baseline” standard of the programme

Suggestion/Comment

DR takes place every six years and has a focus on quality enhancement, strategic planning of academic departments, and international benchmarking. The DR panel has three overseas members, including the DAA. Student achievement against learning outcomes is addressed but the quality assurance handbook does not explicitly record a requirement for DR to comment on the ‘baseline’ standard of the programme, for example, in terms of benchmarked institutions. [Para 2.15, Page 12]

- 3.1 DR is a mechanism through which a department's strategic planning, operations and academic provisions are externally reviewed and benchmarked on a six-yearly basis. Following the audit, the DR system was reviewed and revamped in conjunction with the DAA system (see also R2). The relevant quality assurance handbook was revised to include a requirement for the DR panel to comment on the ‘baseline’ standard of the programme in terms of the benchmarked institutions as recommended by the Audit Panel.
- 3.2 The commentary on baseline standard was operationalised to include but not limited to the following aspects of an academic programme:
 - the level of competence as represented by the programme learning outcomes, compared with relevant institutional learning outcomes and external reference points such as Hong Kong Qualifications Framework (HKQF) generic level descriptors, professional accreditation and registration requirements, and government recognitions, as appropriate
 - the minimum number of credits and other graduation requirements, compared with international standards for similar programmes
 - the threshold standards of subject level student assessments, compared with similar subjects in the benchmarked institutions/programmes

- 3.3 At a more fundamental level, DR has been reoriented to focus on the international benchmarking of academic programmes and subjects in terms of academic standards and quality. The number of essential parameters to be measured against the benchmarked institutions has been reduced from six to three accordingly. The remaining parameters include academic programmes (including subjects), quality of students, and student learning experience and outcomes.
- 3.4 Under the revamped system, the DAA and OAAs will visit the department at least once every two to three years before the DR exercise and provide a comprehensive report each time on the department's quality assurance system, academic programmes and subjects and teaching, learning and assessment, with advice on further enhancement based on international benchmarking. They will also provide comments to the department on the academic standards of programmes and subjects and the appropriateness of assessments during the interval years. With OAAs becoming involved in annual reviews, a minimum of two ad hoc independent advisors from reputable overseas universities will be appointed to serve as panel members in the 6-yearly Departmental Reviews.
- 3.5 The above changes were proposed by the Academic Quality Assurance Team of the Academic Secretariat and the Associate Vice President (Academic Support). Thorough discussions were held at the meeting of the Academic Council with input from the Deans and Heads of Departments. Revisions to the relevant sections of the PPVM (Appendix 4) have been endorsed by the QAC(AD) to reflect the changes described above and to include a report template to facilitate the implementation of the revised framework and the commentary of baseline standards. The changes will come into effect after approval by the Senate.

4 Strengthen the differentiation in the levels of performance under the criterion-referenced assessment (CRA) system

Suggestion/Comment

The text on grading differentiates between levels of student performance in assessment using adjectives such as 'fully meets', 'largely meets', or 'marginally meets'. The Audit Panel considers that levels of performance could be differentiated more precisely and meaningfully and encourages the University to do so. [Para 4.7, Page 17 – 18]

- 4.1 PolyU's approach to assessment is outcome-based and criterion-referenced. In addition to mechanisms for ensuring alignment between assessment methods and intended learning outcomes, the University's general assessment regulations include a set of criterion-based grading descriptions to facilitate consistent derivation of overall subject grades (cf. grading of individual assessment tasks, which may be based on separate rubrics) across subjects and departments. Given the variability of intended learning outcomes across subjects and study levels, this set of grading descriptions is necessarily generic. It uses subject intended learning outcomes as the anchoring point and defines grades in terms of the extent to which the subject intended learning outcomes are met.
- 4.2 In the light of the Audit Panel's comments, the University conducted a benchmark study on the grading and assessment criteria adopted by other universities. The study examined the grading descriptions from all UGC-funded universities in Hong Kong and 10 leading

universities overseas. Great variation in approach was observed, although most of universities sampled have grade descriptors defined for four to six levels whereas PolyU has nine (A+, A, B+, B, C+, C, D+, D, and F). On the basis of the findings, the Working Group on Subject Quality Assurance (WGSQA) proposed that the grading framework be simplified to include grading descriptions for the five main grades only (A, B, C, D and F)¹, thus allowing the levels of performance to be differentiated more meaningfully. From this working premise, the WGSQA developed a more elaborate set of grading descriptions with reference to the samples obtained in the benchmark study and with input from an external consultant, Professor Michael Prosser. Initial drafts were shown to programme leaders and the Chairs of Departmental Learning and Teaching Committee (DLTC) for feedback, and a consolidated version was produced (Appendix 5).

- 4.3 Changing the grading system will have pervasive and lasting impact on assessment practice and cascading effect on other elements of assessment regulations, such as the grade points system. Therefore, wide consultation and careful deliberation are necessary. In this connection, an open forum will be organised in the coming semester to solicit feedback from frontline teachers. The final recommendation of the WGSQA will be submitted to the Learning and Teaching Committee and the Academic Planning and Regulations Committee for consideration, and then to the Senate for approval. It is anticipated that the process will be completed by the end of 2018/19.
- 4.4 In addition to reviewing the grading descriptions, the University has continued with its ongoing effort to enhance assessment practice through the work of the WGSQA and the associated institutional teaching development project. Part of the effort was an extended visit by Professor Michael Prosser in April and May 2018 to provide workshops and consultations to faculties and departments on assessment methods and grading rubrics and their alignment with intended learning outcomes. A total of 18 consultation sessions were conducted, and five workshops were delivered in collaboration with the Educational Development Centre (EDC). Professor Prosser will visit PolyU again in November 2018 to provide further support to the departments.
- 4.5 The WGSQA will also review the current policies and guidelines on subject quality assurance with a view to enhancing the credibility of our assessment practice. The use of the HKQF generic level descriptors as a reference in formulating subject intended learning outcomes will be promoted. Means for enhancing grade integrity will be explored. Relevant professional development opportunities will be organised by the EDC.

5 Introduce an integrated student record system to track student participation across curricular and co-curricular programmes and activities

Affirmation

The Audit Panel was interested to ascertain whether integrated data are available illustrating student achievement across the curriculum and co-curriculum. The University reported that while data on student participation in co-curricular activities exist, they are currently fragmented and separate from curricular records. The Audit Panel recognises the complexity of bringing data sources together but nevertheless

¹ Modifiers (+/-) can be applied to the top three grades (A, B, C) but there will not be separate descriptions for the plus and minus grades.

strongly endorses the University's plans to introduce a comprehensive student record system. [Para 4.12, Page 19]

- 5.1 The University initiated the Student Lifecycle Management Platform (SLMAP) project to establish its long-term internal analytics capability for monitoring and improving student experience. The outcome will be a central platform that integrates the academic and non-academic information of students, including student participation in co-curricular activities. This platform will allow the University to utilise the wealth of student-related data for continuous enhancement of student engagement. It will also support the institutional planning and review of resource deployment and the development of policies and strategies related to student lifecycle (i.e. recruitment, progression and graduation), curriculum design and student support services.
- 5.2 This massive project is overseen by a steering group chaired by the Deputy President and Provost, while an implementation group convened by the Associate Vice President (Academic Support) plans and coordinates the execution of this project. The SLMAP project is broadly divided into three phases. The first phase is the 'build and pilot' phase during which the SLMAP framework will be established and the technical solution for predictive models built. The second phase is the 'roll-out' phase during which the SLMAP framework and predictive models will be enriched and the ongoing operating model will be constructed. The final phase will focus on the optimization for ongoing service (e.g., internal capability and mature operating model). An external vendor will be engaged to stage the platform and conduct the analytics.
- 5.3 The project proposal has been approved by the steering group and the President's Executive Committee and the process of selecting a vendor/service provider has begun. The tendering and procurement process is anticipated to conclude in third quarter of 2018 and the project will commence immediately afterwards. The whole project is targeted to be completed in the third or fourth quarter of 2021.

6 Define, articulate and communicate RPg graduate attributes

Recommendation

The Audit Panel formed the view that the distinction between the standard of RPg and other levels of degree is not clear and therefore recommends that the University define precisely, articulate clearly and communicate effectively its graduate attributes/institutional learning outcomes for RPg programmes. [Para 6.5, Page 23]

- 6.1 In the light of the Audit Panel's comments, a working group led by the Associate Vice President (Research Support) was set up under the Research Committee to review the graduate attributes and institutional learning outcomes for research postgraduate (RPg) programmes. The working group undertook to overhaul the graduate attributes and institutional learning outcomes with a view to defining and articulating the outcomes more precisely and clearly so that the distinction between the standard of RPg and other levels of degree would be clear. The revised version was developed with reference to PolyU's institutional learning outcomes for undergraduate and taught postgraduate programmes, the RPg learning outcomes of a sample of universities from Australia, the UK, the US and Hong Kong, the HKQF generic level descriptors, and the qualification

descriptors under the UK Quality Code for Higher Education.

- 6.2 The outcome of the process is a set of learning outcomes that differentiates clearly the competences to be demonstrated by graduates of MPhil and PhD programmes along three dimensions: research and scholarship excellence, originality, and lifelong learning capability. Feedback from stakeholder groups was solicited. The draft document 'Learning Outcomes for Graduates of Research Postgraduate Programmes – Policy and Guidelines' was circulated to the Chairs of Faculty Research Committees (FRCs), School Board and Departmental/School Research Committee (D/SRCs) for comments. The Research Committee considered the comments received and fine-tuned the draft. The final version was submitted to the Senate for approval.
- 6.3 The Senate, at its 101st meeting on 22 March 2018, considered and approved the 'Draft Learning Outcomes for Graduates of Research Postgraduate Programmes – Policy and Guidelines' (Appendix 6). This set of graduate attributes and institutional learning outcomes will be applied to all RPg programmes to be offered from the 2018/19 academic year onwards. D/SRCs have been requested to:
 - (a) review and revise the intended learning outcomes, programme learning outcomes assessment plan, curriculum map and other relevant sections of the programme documents of their RPg programmes
 - (b) send the proposed changes to the DAAs for comment;
 - (c) pass the proposed changes to the FRC/School Board for endorsement; and
 - (d) pass the endorsed changes to the Research Committee for consideration.
- 6.4 The revision and approval process is in progress. The approved programme documents will be presented to the Senate for information when it reconvenes for the 2018/19 academic year.
- 6.5 In addition to requiring the departments to revise their programme documents, the graduate attributes will also be introduced during the induction programme for supervisors of RPg students. The induction programme will be co-facilitated by the Research Office and the Educational Development Centre. In addition to introducing the graduate attributes for RPg programmes, the induction will also cover the university regulations on RPg study and the role of supervisors and students and offer participants an opportunity to discuss their concerns. A pilot run of the induction programme has been scheduled for 30 August 2018. The official induction programme will be run four times a year in August, October, January and March/April. The design of the programme is such that participants of an earlier session may return to participate in a later session and to share experience and reflect on the difficulties encountered. This arrangement and the effectiveness of the induction programme will be evaluated in one year's time.
- 7 Strengthen the quality assurance and enhancement of offshore TPg programmes when the offshore programme bears the same name on the award parchment as that of the programme offered at the home campus**

Recommendation

[The] Audit Panel recommends that the University strengthen the quality assurance and enhancement (QAE) of offshore TPg programmes to ensure that they are demonstrably comparable in every respect, including student achievement, when the offshore programme bears the same name on the award parchment with that of the programme offered at the home campus. [Para 6.9, Page 24]

- 7.1 PolyU offers a small number of self-financed taught postgraduate programmes in the Chinese mainland, and three of them bear the same name as the programmes offered at the home campus in Hong Kong. These offshore programmes follow the same quality assurance processes and academic regulations as the home-based programmes. In the light of the Audit Panel's comments, the University has taken steps to ensure that such programmes are systematically and periodically compared for equivalence, otherwise will not bear the same name on the award parchment.
- 7.2 To begin with, a set of suggested guidelines on equivalence checks was developed. The guidelines advise programme teams to compare their local and offshore offerings of the same-named programme along five dimensions (nature and volume of the learning involved, grade standards, classification standards, teachers' qualifications, and quality assurance and enhancement practice) and collate other evidence such as external confirmation (e.g. Departmental Review, professional accreditation) to substantiate their claims of equivalence.
- 7.3 The guidelines were disseminated to the relevant departments with a request to conduct an equivalence check on their programmes. The departments were advised that if the results of the equivalence check do not support claims of equivalence between the local and offshore programmes, they should either give up the claim that the two programmes are equivalent and change the title of one of the programmes, or take actions to re-establish the equivalence between the two programmes.
- 7.4 By the time of the review, two of the three departments/school had confirmed that they would no longer offer the programmes at two locations, so the equivalence issue ceased to exist. The remaining school conducted an equivalence check accordingly and submitted a report to the School Board Chair as required. Feedback was provided to the School and the School provided clarifications and further evidence to substantiate the claim of equivalence as requested. Based on the report (Appendix 7), it was concluded that the local and offshore programmes are basically equivalent. Further equivalence checks will be conducted on a regular basis.
- 7.5 To ensure that same-named programmes offered at different locations are compared for equivalence in the future, the following amendments to the Guidelines and Regulations for Programme Planning, Validation and Management (PPVM) have been proposed for approval by the Academic Planning and Regulations Committee:
 - (a) A section be added to the initial programme proposal form (PPVM, Appendix II to A1) for checking the programme's intended learning outcomes, curriculum structure and the main subject areas, and the total credit requirements for graduation of the proposed programme against the same parameters of the same-named home-based programme. The objective is to ensure that the basic parameters of the two

programmes are equivalent from the start.

- (b) An item be added to the ‘major issues considered in validation’ (PPVM, Appendix to B) so that the validation process will include a comparison of the definitive programmes documents and the operational arrangements of the local and offshore programmes if they should bear the same name on the award parchment. The objective is to establish that the two programmes are equivalent by design.
- (c) A sub-section and an appendix be added to the section on programme review (PPVM, Section C2) to articulate the requirements of a full equivalence check after both the local and offshore programmes have been delivered in full. Emphasis will be on demonstrating equivalence in academic standards between the two programmes as evidenced by the comparability of the quality of students’ works obtaining the same grade/classification. The objective is to establish that the offshore programme delivers the same academic standards and carry the same credibility as the same-named home-based programme.

8 Further refine evidence-based monitoring and improvement processes

Suggestion/comment

The Institutional Research and Planning Office was established in 2015 to devise measurable indicators to facilitate evaluation and monitoring of institutional and academic performance. The report encourages the University to refine further its evidence-based monitoring and improvement processes. [Para f, Page 4]

- 8.1 Quality enhancement is a strong feature of PolyU’s approach to quality as well as an ongoing pursuit of the University. The University is encouraged by the Audit Panel’s confirmation that PolyU “has an effective framework in place for quality enhancement” that is “monitored, internally reviewed and externally benchmarked” (QAC Audit Report, p.4) and welcomes the suggestion for further refining the evidence-based monitoring and improvement processes. The development and implementation of the Balanced Scorecard (BSC) system as outlined in the action plan to the QAC is in line with this suggestion.
- 8.2 The BSC was formally rolled out in late 2016. The design of the BSC is based on the strategic plan of the institution and translates the strategy into a collection of strategic objectives, each measured by one or more key performance indicators (KPI). KPIs that can be directly controlled or influenced by academic departments will appear on their departmental BSC. Weighting is placed on a sub-set of those KPIs and performance on weighted KPIs will influence subsequent decisions related to resource allocation. Of the KPIs that do not have a weighting, they remain in the card to provide department heads with a wider perspective of performance in related areas. Each KPI has a target level of performance that is decided in consultation with senior management and data owners.
- 8.3 Over 80% of data for the BSC is collated from central sources, and mostly comprised of data for statutory reporting purposes. In cases where the data is not available from central systems, it is collected directly from departments. Data from departments go through a vetting process to ensure soundness and alignment with the KPI definition. The data are carefully checked by Institutional Research and Planning Office (IRPO) before the

results are disseminated to the senior management, faculties and departments via a dedicated dashboard with access control set according to roles. The BSC results are also shared with the Internal Audit Unit (IAU), Human Resources Office (HRO) and Finance Office (FO) to facilitate designated administrative functions related to quality assurance, performance evaluation and resource allocation.

- 8.4 Heads of academic departments receive the results twice a year. The dashboard allows departments to explore the data at different levels, from core focus areas (Teaching and Learning, Research, Strategy) and specific strategic objectives to individual KPIs. The Heads are able to see the relative position of their department versus others in terms of overall BSC performance. The use of BSC results has been incorporated into the departmental Annual Operation Plan since 2017/18. Standardised reports are generated by the system to eliminate the need for Heads to write descriptions of performance across different areas. Specially designed templates have been adopted to make the alignment of strategy and actions more explicit and to encourage a performance-based review of progress and actions.
- 8.5 The BSC system is continuously reviewed for improvement with feedback from the departments. In the light of the new university strategic plan and the implementation of the UGC's University Accountability Agreement (UAA), updates will be made to the BSC in 2018/19 to ensure its alignment with these developments. Subsequent effort will focus on leveraging data sources for different forms of reporting, streamlining data collection methods, and establishing direct interface with other systems in the University. The University's commitment to refine its evidence-based monitoring and improvement processes will continue.

9 Continue with the development and creation of new learning spaces and promoting the use of blended learning

Suggestion/comment

Student survey data and meetings with students at all levels indicate high levels of satisfaction with improved Library resources in particular and with the development of learning spaces and the use of electronic resources overall, although students would like to see further improvements and developments. The Audit Panel encourages the University to continue in its development and creation of new learning spaces and in the increased use of blended learning. [Para 7.10, Page 27-28]

Learning space

- 9.1 The University is committed to providing flexible, agile, technology-enabled learning environments that foster curiosity, innovation and creativity, support academic endeavours, afford collaborative and interdisciplinary learning opportunities and engage students in a welcoming community of learning. A 10-year revitalisation plan was launched in 2015 to upgrade the lecture theatres and general teaching rooms on the main campus. About 22% of all lecture theatres and general teaching rooms (45 rooms) were upgraded in the three years from 2015 to 2017. The Working Group on Innovative Learning Space (WGILS), which is led by experienced frontline teachers, has been steering the development.

- 9.2 Leveraging the experience and learning accumulated in the past few years, the University commissioned a report entitled “Modernizing Learning Spaces at PolyU: A Guide for Learning Space Needs, Design Principles and Standards” to guide the ongoing enhancement of learning space at PolyU (Appendix 8). The report draws on best practice and information from academic, professional and commercial sources of modern learning space design as well as the work of the WGILS. In addition to an in-depth needs analysis, the report includes 100 guiding principles and recommendations for the planning, design, creation, oversight and management of learning spaces. These principles and recommendations had evidently been put into good use in the renovation of the 2/F and 3/F of the BC Wing in summer 2017, for example:
- Classrooms were combined to form larger and square or regular-shaped classrooms (rooms combined include BC202 and 203, BC215 and 216, BC303 and 304, BC310 and 311).
 - Average space per student has been increased for interaction, mobility and comfort. A 19.0% increment is recorded for new lecture theatres (from 1.05 m² to 1.25 m² per student). A 40.1% increment is recorded for new general teaching rooms with flexible furniture (from 1.47 m² to 2.07 m² per student).
 - Multiple monitors/screens were installed in all renovated classrooms in BC wings to ensure clear lines of sight for students.
 - All renovated classrooms are equipped with multiple electrical power sockets for students’ mobile devices.
 - Flat-floor rooms (e.g. BC305) are furnished with light and flexible tables and chairs.
 - New informal learning zones are set up near the renovated classrooms (BC404 and BC302) to enable seamless learning transition within the precinct.
- 9.3 To raise colleagues’ awareness of upgraded classrooms and encourage them to adopt innovative pedagogies that make good use of the advanced features of these classrooms, a small experiential learning scheme for teachers was launched in Semester 1, 2017/18. Six groups of teachers and students were selected. The WGILS studied their experience of teaching and learning in the renovated classrooms. Seven teachers were interviewed and around 500 students were surveyed before and after the learning experience. The survey results show that the majority of the students appreciated the fact that the furniture could be moved around and became more inclined to discuss and collaborate in class. The teachers interviewed also felt that the new classroom design was more effective than traditional rooms in promoting interactive teaching and learning. Their experience was shared to the wider community in three sharing sessions organised by the WGILS in January 2018. This experiential learning scheme will be repeated in Semester 1, 2018/19. Seven different groups of teachers and students will be engaged.
- 9.4 To inform the way forward in the provision of informal learning space at PolyU, a new project has been set up to study the demands and usage of informal learning space on campus. The project sets out to identify students’ movement patterns and needs of campus space outside classrooms and evaluate existing informal collaborative learning environment. Views will be solicited from academic and support unit staff on how informal learning can be integrated into the overall student experience. Around 300 students from all Faculties and Schools have been recruited to participate in this study. Their movements on campus will be tracked via mobile devices and personal diaries. Observations will be conducted at 36 informal learning spaces around the campus to identify usage patterns. Further surveys and interviews with students and teachers will

be conducted to identify their needs and preferences with learning space. Enhancements to the informal learning space will be made based on the findings of this study and further evaluations will be conducted afterwards.

Blended learning

- 9.5 Following the successful implementation of the university strategic plan “to enrich students’ learning experience by encouraging active learning, the use of innovative teaching approaches and technology, and promoting the adoption of flexible and varied teaching delivery methods” in 2012/13-2017/18, eLearning development will continue to feature prominently in the new strategic plan for 2019/20-2024/25. The overarching goal for learning and teaching highlights the University’s commitment to enhance learning experience via a refined curriculum characterised by an effective blend of face-to-face and online modes of learning and appropriate application of interactive pedagogies and education technologies. The development of Massive Open Online Courses (MOOCs) and Small Private Online Courses (SPOCs) and their integration into the curriculum have an important place in this plan.
- 9.6 Since 2015, PolyU has successfully launched 13 MOOCs. In December 2017, PolyU furthered its commitment in promoting MOOC development by becoming the first university in Asia to join edX’s University Advisory Board as a Contributing Charter Member. This provides the foundation for the University’s strategic plan to leverage its experience from MOOCs and SPOCs to create virtual tutorials and peer learning groups, to incorporate online and public domain teaching and learning materials into curriculum and to use the best eLearning resources to support blended teaching and learning. Properly designed and implemented MOOCs are useful resources for blended learning and can attract a large number of learners from across the globe to participate in the learning activities, which may greatly enrich the learning experience and learning outcomes of our students. In order to facilitate developments in this direction, the University has allocated \$6.3M to support the development of MOOCs in 2018/19. The review of proposals is now in progress and the results will be announced in late September 2018.
- 9.7 Making innovative use of technology to promote active learning is another dimension of the University’s eLearning strategy. In 2016, the University introduced a policy to require the adoption of technology-enhanced active learning approaches in large classes (with 200 or more students). Instead of continuous lecturing, the teacher will engage students in active learning tasks during the lectures via appropriate use of technology. Full implementation of this policy will commence in the 2018/19 academic year.
- 9.8 With eLearning development thriving, quality assurance measures need to be updated to match the development. In this connection, the University utilised part of the teaching development grants for this triennium to set up a project on eLearning quality assurance. The project will develop new quality assurance measures for eLearning with a view to their integration into the established programme quality assurance process of the University. The new measures will be benchmarked against those adopted by other universities and piloted on the eLearning initiatives happening on PolyU campus before they are formally adopted. The project is expected to be completed around the end of 2019.

10 Give greater prominence to globalisation within the graduate attributes

Recommendation

[Although] the Audit Panel found evidence of global perspectives, this theme is not specifically mentioned in the current set of graduate attributes. The Audit Panel therefore encourages the University to consider whether the theme of global engagements could be given greater prominence within the Ug graduate attributes.
[Para 7.15, Page 29]

- 10.1 The University welcomes the Audit Panel's confirmation of the University's work and achievement in developing students' global perspective and has addressed the Panel's recommendation regarding the graduate attributes in conjunction with the development of the university strategic plan for 2019/20-2024/25.
- 10.2 The University started a review of the 4-year undergraduate degree curriculum in June 2016. The review is in two phases. The first phase, completed in June 2017, focused on the framework and implementation of the new curriculum. One of the review items was the incorporation of globalisation/internationalisation elements into the existing definitions of the desired graduate attributes. A task force led by the Associate Vice President (Undergraduate Programmes) was set up to conduct the review.
- 10.3 The task force had gone through the documents and reports of studies related to the curriculum since its implementation and conducted surveys and an open consultation session to solicit views from graduates, students and academic and non-academic staff. Possible changes to the definitions of the desired graduate attributes were proposed with a view to making global outlook and entrepreneurship explicit. The proposal was considered by the strategic planning task force and informed the revision of the university mission. As a result of the deliberation, a globalisation element was incorporated in the revised mission statement:

Mission

- 1) *To pursue impactful research that benefits the world.*
 - 2) *To nurture critical thinkers, effective communicators, innovative problem solvers and socially responsible global citizens.*
 - 3) *To foster a University community in which all members can excel in their aspirations with a strong sense of belonging and pride.*
- 10.4 The graduate attributes and the associated institutional learning outcomes will be reviewed and updated based on the new mission statement. The target is to finalise the institutional changes by the end of the first quarter of 2019, so that the departments will be able to update their programmes and subjects for implementation in 2019/20.
- 10.5 In addition to addressing the Audit Panel's recommendation, the University took this opportunity to review and enhance the Cluster-Area Requirement (CAR) subjects for cultivating global outlook. A review conducted by the Committee on General University Requirements (CoGUR) in 2017 reveals that currently 221 out of 275 CAR subjects (80.4%) have international themes infused in the syllabus to some degree, compared with 75.6% in 2016/17. To further increase the proportion of CAR subjects with globalisation

elements, ‘Globalization, Internationalization and Engaging the Nation’ was made a priority area in the latest call for proposals on new CAR subjects. Subject proposals are currently under review.

11 Address challenges of globalisation

The Audit Panel also noted that participation rates in the overseas exchange programme are relatively low and that some academic units face challenges in securing appropriate partners, establishing credit-transfer arrangements and accommodating inbound exchange students. The report acknowledges the ways in which the University is striving to increase opportunities for Ug students to experience international exposure via overseas work-integrated education (WIE) and service learning placements within the core curriculum. RPg students receive a budget for presenting at a minimum of one overseas conference and may also benefit from overseas attachment programmes. The report comments on the challenging implications for resource allocation presented by the University’s ambitions in relation to globalisation. [Para i, Page 6]

Exchange opportunities

- 11.1 Statistics of inbound and outbound exchange over the past three academic years show a fluctuating pattern, with the figures for both inbound and outbound exchanges went up in 2016/17 and down in 2017/18.
- 11.2 The University’s International Affairs Office (IAO) reviewed the financial resources for supporting international exchange activities. The review shows that there has not been shortage of funding and the level of financial support for outbound exchanges is the second highest among UGC-funded universities in Hong Kong. It appears that lack of adequate funding support may not be a key factor contributing to the decline in outbound exchanges. Instead, the decline may be attributable to the growing number of alternative non-local learning opportunities available at PolyU (Section 11.5). Efforts will be made to investigate the cause of the decline in outbound and inbound exchange, e.g. through focus group interviews with students. Remedial measures for boosting participation will be identified and continuing efforts will be made to attract more inbound students to our campus.
- 11.3 One of the actions taken to encourage more outbound exchange is the improvement made to the exchange places allocation process. Focus groups with students were conducted by IAO in 2015/16 to gauge students’ perception of the exchange process and experience. The findings indicated that students had found the option of applying for an exchange place at both institutional and faculty/departmental levels confusing and cumbersome, thus many students would simply apply for both. Consequently, if the students received an offer from both, they would have to reject one of the offers. By the time this was done, it would not be possible to reallocate the offer to another student, and the exchange place would be wasted for that year.

- 11.4 Hence, from 2017 onwards, with reference to the practice of international peers such as the National University of Singapore, IAO has changed this process whereby all exchange quotas are allocated by the individual Faculties/Schools directly. Institutional level exchange places are allocated directly to Faculties/Schools based on their need and demand. This change benefits students by having a one-stop place to apply for exchange places. Although IAO no longer handles student applications directly, it continues to work with the faculties and departments in promoting overseas exchange to students and in the administration of accepted offers.

Other non-local learning opportunities

- 11.5 In addition to continuing with the development and enhancement of exchange opportunities, the University has been working actively to create other forms of offshore learning opportunities, including offshore Service-Learning (SL), Work-Integrated Education (WIE), CAR subjects and co-curricular activities. This development is in line with the new sector-wide performance measure of capturing all forms of non-local learning opportunities offered to students as stipulated in the UGC's University Accountability Agreement. It is a timely development that caters well to the needs of students who want to have a non-local learning experience but do not wish to be away from Hong Kong for an entire semester.
- 11.6 Offshore SL is the biggest source of offshore learning experience at PolyU. Offshore SL places offered have been on an upward trend over the past three years (see table below). The combination of SL and leadership development under the Global Youth Leadership and Service-learning Institute (GYLSLI) in March 2018, which is expected to have a positive impact on students' offshore learning experience. Looking forward, leveraging the advancement of information and communication technology, the University has allocated strategic plan gap-year fund in 2018/19 to support the development of virtual classes in partnership with overseas renowned universities on SL and youth leadership as an opportunity for our students to have international exposure at home.

Academic Year	Total of SL subject places offered	No. of offshore SL subject places offered	% of offshore SL places
2015/16	4,286	890	20.8%
2016/17	4,537	870	19.2%
2017/18	4,455	1,052	23.6%

- 11.7 Offshore WIE opportunities have increased steadily since 2015/16. Arranged by the Office of Careers and Placement Services (CAPS), offshore WIE is promoted to students via social media, mass emails, exhibition, banners, walk-in sessions. Special briefings are organised for Year 2 and Year 3 students and senior year students. Students' WIE experience is celebrated and perpetuated through the WIE Ambassador Scheme and events, such as the WIE Closing Ceremony. Stable uptake by undergraduate students has been recorded:

Number of undergraduate students (including local and non-local students)			
	2015/16	2016/17	2017/18
International WIE	426	492	500*
Chinese Mainland WIE	941	923	900*
Total	1367	1415	1400*

* Estimated figures. Actual figures will be consolidated in October 2018

- 11.8 Offshore CAR subjects are another form of offshore credit-bearing learning opportunity for students. CAR subjects are designed to expand students' intellectual capacity beyond disciplinary domains and to enable them to tackle professional and global issues from a multidisciplinary perspective. 200 to 300 students have taken offshore CAR subjects each year since 2015/16.
- 11.9 A variety of offshore co-curricular learning experiences are organised each year by the International Affairs Office (IAO) and Chinese Mainland Affairs Office (CMAO). Examples include the Summer@OxBridge Programme, summer research attachments for undergraduate and postgraduate students, global student projects, and assorted summer schools and study tours. In 2017/18, about 200 students participated in overseas co-curricular activities and about 300 students participated in different forms of learning programmes in the Chinese mainland and Taiwan.

Enhancement plans

Travel subsidy scheme

- 11.10 PolyU targets to provide all students with at least one non-local learning experience of at least one-week long by the end of the new strategic plan period (i.e. 2024/25). In this connection, \$1.9M has been allocated to IAO to set up a travel subsidy scheme in 2018/19. The objective is to encourage and enable more students to engage in non-local learning activities such as summer abroad programmes that are currently not entitled to any funding support from the University.

Partnership development

- 11.11 The University will continue to explore collaboration with overseas universities and organisations to create new internship opportunities. New partnerships have been established through the International University Partnership (IUP) programme launched this year. The programme aims at promoting reciprocal research internship exchange in UK, Canada and Japan and other popular internship locations. Renowned institutions like Tokyo City University, University of Strathclyde and Polytechnique Montréal are our new university partners this year.
- 11.12 At the same time, PolyU has continued to work with employers and agents to create internship opportunities in the commercial sector. New internship programmes have been developed in Japan and Korea, Greece, Malta, Portugal, Slovenia and Sweden. Locations are selected for their fast development in fields like digital marketing, fintech, robotics and data analytics. Internships are chosen based on the trends of employment. It is hoped

that students will be able to develop their professional competitiveness as well as global outlook and cross-cultural communication skills through their overseas WIE experience.

Evaluation study

- 11.13 Following on from the first study conducted in 2015, IAO and CMAO are preparing for a second study on offshore learning programmes as part of the regular monitoring of our students' exchange and non-local experience. The second study will investigate the impact of offshore learning experience, students' reasons for not joining outbound activities, and ways to improve the existing activities portfolio. Other offices (e.g. Office of Service-Learning and CAPS) that provide non-local learning opportunities will also participate in the study. The study is expected to be completed by early 2019.

Credit mapping and transfer

- 11.14 One of main concerns that students have expressed about joining an exchange programme is whether the credits of subjects taken during the exchange can be transferred back and counted towards the programme of study at home. Credit transfer is an academic judgement made at the departmental level. Currently, there is no central database for recording and sharing which overseas subjects have been approved by the departments for credit transfer. The Academic Secretariat has therefore developed an online system for applying for credit transfer. Starting from Semester 1 of 2017/18, data on credit transfer applications originated from exchange programmes, including the exchange institutions and subjects taken, are captured in the system. In the long run, this system can be developed into a central database for sharing credit transfer information among the departments.
- 11.15 In the light of the growing enrolment in exchange programmes and overseas summer schools, the University is developing a set of guidelines to facilitate the credit transfer of CAR subjects completed at overseas institutions with different credit systems such as European Credit Transfer System. In addition, the existing 'Guidelines for Credit Transfer of GUR subjects' will be reviewed in 2018/19. All these initiatives will form the basis of a series of workshops on credit mapping and transfer for programme leaders. The workshops will be offered at the end of 2018/19 and 2019/20.

Other ideas to be explored

- 11.16 In addition to the plans mentioned above, several new ideas will be explored during the gap year between the two strategic plan periods (i.e. 2018/19):
- Consider developing a new type of CAR subject that takes the form of a guided study where students can complete the subject by doing a project on their exchange experience, thus enhancing the credit transferability of exchange programmes.
 - Consider different ways to evaluate the outcomes of offshore learning experience and develop assessment tools on the learning outcomes.
 - Consider redesigning the subject proposal form, subject description form and student feedback questionnaire to facilitate the incorporation of global elements (e.g. global issues, cultural differences) into the subject content.

Concluding Remarks

PolyU takes the Audit Panel's comments seriously. We have adopted a holistic approach to addressing the issues identified by the Panel. Many of the actions planned have gone beyond simply addressing the recommendations to engaging the relevant parties in reviewing and enhancing current practice. The revamping of the Departmental Academic Advisor and Departmental Review systems (Action Area 2 and 3) is a good example of this holistic approach. In a few areas, we have also gone beyond our own action plans in order to bring further enhancement to current practice. The additional review and professional development support on assessment practice (Action Area 4) is an example that illustrates the University's commitment to quality enhancement. We hope the QAC will find the actions taken and the progress made a testament to PolyU's striving for continuous improvement and achievements in learning and teaching. We thank the Audit Panel again for their constructive comments.

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Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>1 Articulate the Senate’s responsibility for academic standards more formally</p> <p>a) The report indicates, however, that Senate’s responsibility for academic standards could be more formally articulated. [Para c, Page 2]</p> <p>b) The Audit Panel was informed that overall responsibility for academic standards rests with Senate which delegates some of its functions to its committees such as the Academic Planning Committee, Academic Regulations Committee, Learning and Teaching Committee (LTC), Quality Assurance Committee (Academic Departments), and Research Committee (RC). Detailed annual reports of each of these committees are submitted to Senate for approval. Faculty/School boards also consider programme proposals with respect to their academic standards. While it was clear that in practice Senate does approve significant academic developments, such as the framework for outcomes-based research postgraduate (RPg) programmes, the Audit Panel noted that Senate’s terms of reference do not explicitly mention academic standards. The Audit Panel therefore recommends that the University articulate more formally Senate’s responsibility for academic standards. [Para 2.5, Page 9]</p>	<p>1) Set up a task force to review: - Terms of reference of the Senate to emphasise the Senate’s responsibility in upholding academic standards. - Terms of reference and composition of committees under the Senate to ensure the support to the Senate in its responsibility to uphold academic standards. - The logistics and mode of operation of the Senate for upholding academic standards.</p> <p>2) The task force to produce a set of terms of reference which articulates the Senate’s responsibility for academic standards for approval and implementation.</p> <p>3) The task force to review outcomes of the new system one year after the implementation stipulated in #2.</p>	<p>President and Deputy President assisted by Associate Vice President (Academic Support); Associate Vice-President (Learning and Teaching); Academic Quality Assurance Team</p>	<p>1) To be completed by end of 2017.</p> <p>2) To be completed by end of 2017/18.</p> <p>3) To be completed by end of 2019.</p>	<p>1) Completed - A task force has been set up with terms of reference that matches the action plan.</p> <p>2) To be completed - The task force is finalising the recommendation for approval by relevant parties.</p>
<p>2 Strengthen the role of Departmental Academic Advisors (DAAs) with respect to commentary on academic standards</p> <p>a) The report endorses the steps the University is taking to secure regular and comprehensive external comment on academic standards via the existing DAA system to complement that obtained from the six-yearly Departmental Review (DR) system, which involves broader and more in-depth external benchmarking and evaluation than the DAA system. [Para c, Page 3]</p>	<p>1) Review duties of DAA to emphasise the role of commenting on academic standards and achievement.</p>	<p>Quality Assurance Committee (Academic Departments); Associate Vice President (Learning and Teaching); Academic Quality Assurance Team</p> <p>Deans of Faculty and Heads of Department.</p>	<p>1) To be completed by end of 2017.</p>	<p>1) Completed - The duty list of DAA has been reviewed and revised to emphasise the benchmarking of academic standards and achievement.</p>

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>b) Where external examiners are appointed, they explicitly comment on maintenance of standards via comment on assessments, grading, achievement of outcomes and level of award. The Audit Panel noted, however, that annual DAA reports for the most part do not discuss achievement of standards or outcomes, reporting instead on other matters including student recruitment, staffing and research. The Audit Panel noted that DAAs are required to ‘monitor and maintain the standard of all academic functions of the Department’. This includes advising on the programme leaning outcomes assessment plan (P-LOAP) and their results as well as advising on the benchmarking of programme and subject outcomes relative to international standards. However, the Audit Panel could not locate a formal requirement for DAAs to comment on academic standards and student achievement in either University guidance or the DAA role description. [Para 2.12, Page 11]</p> <p>c) The Audit Panel was informed that the University had recognised that DAA reports are variable and that DAAs do not necessarily comment on academic standards every year. Further, it was noted that where DAAs lacked the expertise to comment on certain subjects within the department, heads of department had been empowered since 2015 to appoint additional external academic advisers (EAAs). This had been implemented in four departments. The University is currently reinforcing the mechanisms for external moderation of subject level assessments by requiring DAAs and DR panels to comment on syllabuses and teaching materials of sample subjects and benchmark the outcomes of programmes with international standards. As this specific enhancement was only put into effect in 2015/16, the DAA and DR reports available to the Audit Panel did not yet reflect this change. The Audit Panel endorses the steps PolyU is taking to enhance the DAA system and further recommends that the University identify and implement the means by which the University can obtain regular and comprehensive external comment on academic standards and student achievement. [Para 2.13, Page 11]</p>	<p>2) Develop a system with reference to the results obtained in #1 which is effective for the DAA to comment on academic standards and achievement at the subject and programme levels.</p>		<p>2) To be completed by end of 2017/18.</p>	<p>2) Completed</p> <ul style="list-style-type: none"> - The duty list for DAA/OAA is substantially reduced to focus on the international benchmarking of quality assurance process, academic programmes and subjects, and teaching, learning and assessment practices. - The DAA system was revamped to include Overseas Academic Advisors (OAA) to cater the range of subject disciplines within the same department - A report template has been created to ensure that DAA reports will cover all essential aspects, including academic standards and achievement.

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>3 Require DR to comment on the “baseline” standard of the programme</p> <p>DR takes place every six years and has a focus on quality enhancement, strategic planning of academic departments, and international benchmarking. The DR panel has three overseas members, including the DAA. Student achievement against learning outcomes is addressed but the quality assurance handbook does not explicitly record a requirement for DR to comment on the ‘baseline’ standard of the programme, for example, in terms of benchmarked institutions. [Para 2.15, Page 12]</p>	<p>1) Review the Handbook on PolyU’s Quality Assurance Framework to stipulate an explicit requirement for the DR panel to comment on the baseline standard of the academic programmes.</p> <p>2) Develop the review process and a record system to facilitate the DR panel to comment on the baseline standard of a programme.</p>	<p>Quality Assurance Committee (Academic Departments); Associate Vice President (Learning and Teaching); Academic Quality Assurance Team</p>	<p>1) To be completed by end of 2017.</p> <p>2) To be completed by end of 2017/18.</p>	<p>1) Completed</p> <ul style="list-style-type: none"> - The relevant quality assurance handbook was revised to include a requirement for the DR panel to comment on the ‘baseline’ standard of the programme in terms of the benchmarked institutions <p>2) Completed</p> <ul style="list-style-type: none"> - The scope of DR is substantially reduced to focus on the international benchmarking of academic programmes (including subjects), quality of students, and student learning experience and outcomes. - A report template with guidelines on commenting on baseline standards has been introduced.
<p>4 Strengthen the differentiation in the levels of performance under the criterion-referenced assessment (CRA) system</p> <p>The University’s approach to CRA requires assessment based on criteria and academic standards derived from the subject intended learning outcomes (SILOs), as set out in the subject description form. There are clear and comprehensive guidelines for implementation of CRA which provide information on identifying SILOs; selecting assessment methods aligned with intended learning outcomes (ILOs); setting assessment criteria; communicating criteria to students and assessors; assessing and</p>	<p>1) Review the current grading system to enable different levels of performance to be differentiated more precisely and meaningfully.</p>	<p>Academic Regulations Committee with the input/involvement of the Learning and Teaching Committee, and Associate Vice President (Learning and Teaching)</p>	<p>1) To be completed by end of 2018.</p>	

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>grading; and feeding back to students. The text on grading differentiates between levels of student performance in assessment using adjectives such as ‘fully meets’, ‘largely meets’, or ‘marginally meets’. The Audit Panel considers that levels of performance could be differentiated more precisely and meaningfully and encourages the University to do so. [Para 4.7, Page 17 – 18]</p>	<p>2) Benchmark against the grading system of other institutions (local and non-local) and revise grade descriptors to differentiate the levels of performance in a clearer and more meaningful manner.</p>		<p>2) To be completed by end of 2018.</p>	
<p>5 Introduce an integrated student record system to track student participation across curricular and co-curricular programmes and activities</p> <p>a) The University is also planning to introduce an integrated student record system to track student participation across curricular and co-curricular programmes and activities; data of which are currently fragmented. The report encourages PolyU to introduce such a system as soon as possible, better to enable students and the University to understand and evaluate the full impact of the educational provision it offers. [Para e, Page 4]</p> <p>b) The Audit Panel was interested to ascertain whether integrated data are available illustrating student achievement across the curriculum and co-curriculum. The University reported that while data on student participation in co-curricular activities exist, they are currently fragmented and separate from curricular records. The Audit Panel recognises the complexity of bringing data sources together but nevertheless strongly endorses the University’s plans to introduce a comprehensive student record system. [Para 4.12, Page 19]</p>	<p>1) Develop Student Life Management Platform to capture essential student information covering curriculum and co-curricular activities which can assist consolidating snapshots of student information from various sources for integrated analysis and projections.</p> <p>2) Set up a steering group to monitor the implementation of the Student Life Management Platform.</p> <p>3) Set up an implementation group to operate the Student Life Management Platform. This group is to report to the steering group mentioned in #2 on a quarterly basis. The implementation group is to engage all units holding student data and oversee details on execution of the project.</p>	<p>Associate Vice President (Academic Support) assisted by Vice President (Students and Global Affairs)</p>	<p>1) To be completed in phases and by end of 2019/20.</p> <p>2) To be completed within 2016/17.</p> <p>3) To be completed within 2016/17.</p>	<p>2) Completed - A steering group chaired by the Deputy President and Provost has been set up.</p> <p>3) Completed - An implementation group convened by the Associate Vice President (Academic Support) has been set up to plan and coordinate the execution of the project.</p>

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>6 Define, articulate and communicate RPg graduate attributes</p> <p>a) The report indicates the need to strengthen the definition and communication of graduate attributes for RPg programmes. [Para c, Page 3]</p> <p>b) The Audit Panel received mixed messages about graduate attributes for RPg students and their relationship to subject, programme and institutional learning outcomes. The report therefore encourages the University to define precisely, articulate clearly and communicate effectively the graduate attributes for RPg programmes. [Para g, Page 5]</p> <p>c) The Audit Panel was informed that the University’s graduate attributes/institutional learning outcomes apply equally to undergraduate (Ug), taught postgraduate (TPg), and RPg students, but also that they are tailored to RPg students. The Audit Panel noted that documents mapping programme intended learning outcomes (PILOs) for each RPg programme against the two overarching university aims do not mention the University’s graduate attributes nor institutional learning outcomes specific to RPg programmes. The University explained that the two aims are derived from the Ug institutional learning outcomes but that this remains implicit rather than explicit within institutional processes and documentation. It was also made clear that the PILOs for RPg programmes were developed in 2014/15 and that the impact of their implementation will be reviewed in due course. The Audit Panel formed the view that the distinction between the standard of RPg and other levels of degree is not clear and therefore recommends that the University define precisely, articulate clearly and communicate effectively its graduate attributes/institutional learning outcomes for RPg programmes. [Para 6.5, Page 23]</p>	<p>1) Set up a working group under Research Committee to review and align the RPg graduate attributes with the institutional learning outcomes.</p> <p>2) Disseminate the outcomes on the review of RPg graduate attributes by Research Committee to Departmental Research Committees, Faculty Research Committees and research supervisors.</p> <p>3) Provide training to new research student supervisors on the RPg graduate attributes by Research Committee in collaboration with Educational Development Centre.</p>	<p>Vice President (Research Development) assisted by Associate Vice President (Research Support)</p> <p>Chairs of Departmental Research Committee and Faculty/School Research Committee.</p>	<p>1) To be completed by end of 2016/17.</p> <p>2) To be completed by end of 2018.</p> <p>3) To commence in 2017/18.</p>	<p>1) Completed</p> <ul style="list-style-type: none"> - A working group has been set up to review and revise the institutional learning outcome for RPg programmes. - The recommendation has been approved by the Senate. <p>3) Completed</p> <ul style="list-style-type: none"> - An induction programme for RPg student supervisors has been developed, which will cover a range of topics including RPg graduate attributes. - The induction programme will be offered jointly by the Research Office and the Educational Development Centre four times a year.

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>7 Strengthen the quality assurance and enhancement of offshore TPg programmes when the offshore programme bears the same name on the award parchment as that of the programme offered at the home campus</p> <p>a) It also suggests that the quality assurance and enhancement of offshore TPg programmes should be strengthened to ensure that they are demonstrably comparable in every respect, including student achievement when the offshore programme bears the same name on the award parchment as that of the programme offered at the home campus. [Para g, Page 5]</p> <p>b) Close examination of relevant documents and meetings with senior management and academic managers responsible for the offshore TPg programmes revealed, however, that in two cases considered by the Audit Panel there exist differences between the offshore programme and the programme offered on the home campus that could affect the standard and quality of the student experience. The differences related to language of instruction and assessment and the volume and nature of content and assessment. This becomes an issue when the offshore programme and its corresponding programme offered on the home campus bear the same name on the award parchment. Furthermore, the Audit Panel found no evidence that student achievement of the home campus and offshore cohorts is systematically compared. Therefore the Audit Panel recommends that the University strengthen the quality assurance and enhancement (QAE) of offshore TPg programmes to ensure that they are demonstrably comparable in every respect, including student achievement, when the offshore programme bears the same name on the award parchment with that of the programme offered at the home campus. [Para 6.9, Page 24]</p>	<p>1) The Department Heads (Prof. Qin Lu and Prof. John Xin) and the School Dean (Prof. Kaye Chon) will review quality assurance and enhancement processes as well as evidence of learning outcomes of the three existing offshore and home campus programmes with the same name on the award parchment to ensure comparability in all aspect. The review process is to be vetted by the Faculty Deans (Prof. HC Man and Prof. WT Wong) and the School Board Chairman (Prof. Philip Chan).</p> <p>2) The results of the review in #1 will be submitted to the Associate Vice President (Academic Secretary) and disseminated to programme leaders of the three concerned offshore TPg programmes to enforce the quality assurance and enhancement processes.</p> <p>3) The Associate Vice President (Academic Secretary) and the Academic Secretariat will incorporate new requirement into the new programme planning process to demonstrate comparability of quality assurance and enhancement, and all aspects of learning and teaching processes between the proposed off-shore TPg programme and the home campus TPg programme, which bear the same name on the award parchment.</p>	<p>Deputy President and Provost assisted by Associate Vice President (Academic Support); Vice President (Student and Global Affairs); Deans of Faculty and Heads of Department concerned.</p>	<p>1) To be completed by end of 2017.</p> <p>2) To be completed by end of 2017/18.</p> <p>3) To commence in 2017/18.</p>	<p>1) Done in conjunction with (2)</p> <p>2) Completed - Two of the three programmes concerned will cease to be offered in different locations. - Equivalence check has been conducted on the remaining programme; the results support the claim of equivalence.</p> <p>3) Completed - A new requirement for conducting equivalence check on same-named programmes offered at different locations has been incorporated into the programme management guidelines.</p>

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>8 Further refine evidence-based monitoring and improvement processes</p> <p>The Institutional Research and Planning Office was established in 2015 to devise measurable indicators to facilitate evaluation and monitoring of institutional and academic performance. The report encourages the University to refine further its evidence-based monitoring and improvement processes. [Para f, Page 4]</p>	<ol style="list-style-type: none"> 1) Develop the Balanced Scorecard (BSC) system which gives Heads, Deans, and Senior Management an at-a-glance view of performance from multiple perspectives. 2) Implement the BSC system for generating analytics which are to be released to academic units twice a year (September and March). 3) Incorporate the BSC as part of regular reporting cycles. 4) Link the results of BSC with resource allocation decisions. 	<p>Deputy President and Provost; Institutional Research and Planning Office; and Information Technology Services Office.</p>	<ol style="list-style-type: none"> 1) To be completed by end of 2017. 2) To be completed by end of 2017/18. 3) To be completed by end of 2017/18. 4) To be completed by end of 2017/18. 	<ol style="list-style-type: none"> 1) Completed - The BSC system has been developed accordingly. 2) Completed - The BSC system has been implemented, releasing analytics to academic departments twice a year. 3) Completed - BSC summary report now forms part of the departmental Annual Operation Plan. 4) Completed - BSC results are used in the University Planning Exercise to inform decisions on resources allocation.
<p>9 Continue in the development and creation of new learning spaces and in the increased use of blended learning</p> <p>a) Student survey data and meetings with Ug, TPg and RPg students indicate high levels of satisfaction with the development of learning spaces and the use of electronic resources overall, although students would like to see further improvements. The report suggests that the University continue in its development and creation of new learning spaces and in the increased use of blended learning technologies. [Para h, Page 5]</p> <p>b) Student survey data and meetings with students at all levels indicate high levels of satisfaction with improved Library resources in particular and with the development of learning</p>	<ol style="list-style-type: none"> 1) Set design standards and equipment provisions for formal and informal learning spaces suitable for technology-based active learning by the Working Group on Innovative Learning Spaces. 2) Incorporate the design standards and equipment provisions into renovation of all formal and informal learning spaces. 	<p>The Working Group on Innovative Learning Spaces; Associate Vice-President (Learning and Teaching); Deans of Faculty and Heads of Department.</p>	<ol style="list-style-type: none"> 1) To be completed by end of 2017. 2) To be completed by end of 2017/18. 	<ol style="list-style-type: none"> 1) Completed - A Guide for learning space needs, design principles and standards titled 'Modernizing Learning Spaces at PolyU' was produced. 2) Completed - The design standards were used in the renovation of the BC Wing in summer 2017

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>spaces and the use of electronic resources overall, although students would like to see further improvements and developments. The Audit Panel encourages the University to continue in its development and creation of new learning spaces and in the increased use of blended learning. [Para 7.10, Page 27-28]</p>	<p>3) Conduct large-scale evaluative study to review the effectiveness of the new design standards and equipment provisions on meeting learning and teaching needs of the University.</p> <p>4) Implement blended learning pedagogy in large class teaching.</p> <p>5) Develop workload measures and specific quality assurance processes for subjects adopting technology-based active learning pedagogy.</p>		<p>3) To be completed by end of 2018/19.</p> <p>4) To be completed by end of 2019/20.</p> <p>5) To be completed by end of 2019/20.</p>	<p>3) Completed</p> <ul style="list-style-type: none"> - A large-scale evaluative study was conducted in 2017/18 in conjunction with an experiential learning scheme for teachers. - The study and scheme will be repeated in 2018/19.
<p>10 Give greater prominence of globalisation within the graduate attributes</p> <p>a) The Audit Panel noted, however, that the graduate attributes do not explicitly refer to the globalisation theme and hence student achievement in this respect may not be measured and monitored. The report suggests that the University give greater prominence to globalisation within the graduate attributes, given the strategic importance it attaches to this theme. [Para i, Page 6]</p> <p>b) PolyU has made the strategic decision to mandate the incorporation of a global perspective within the Ug curriculum. Two of the four cluster areas under the general university requirements (GURs) for all Ug programmes emphasise global issues and at least one of the broadening subjects is required to be ‘China-related’. PILOs related to globalisation are now included in all Ug programmes. The previous Strategic Plans (2001-2008 and 2008-2012) included graduate attributes on global engagement, such as</p>	<p>1) Set up a task force to conduct a comprehensive review of the 4-year undergraduate curriculum which includes globalisation/internationalisation in the graduate attributes.</p> <p>2) Review the Cluster Area Requirements (CAR) subjects and other subjects in the context of globalisation.</p>	<p>Deputy President and Provost assisted by Associate Vice President (Academic Support) and Associate Vice President (Learning and Teaching); Vice President (Student and Global Affairs) assisted by Associate Vice President (Undergraduate Programme)</p>	<p>1) To be completed by end of 2016/17.</p> <p>2) To be completed by early 2018.</p>	<p>1) Completed</p> <ul style="list-style-type: none"> - A task force has been set up and the review has been conducted accordingly. <p>2) Completed</p> <ul style="list-style-type: none"> - A review has been conducted by the task force accordingly.

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>global outlook and cultural appreciation. However, although the Audit Panel found evidence of global perspectives, this theme is not specifically mentioned in the current set of graduate attributes. The Audit Panel therefore encourages the University to consider whether the theme of global engagements could be given greater prominence within the Ug graduate attributes. [Para 7.15, Page 29]</p>	<p>3) Incorporate the outcomes of the review mentioned in #1 to form an additional graduate attribute of students as part of the University's new strategic plan (from 2018 to 2024).</p>		<p>3) To be completed by early 2018.</p>	<p>3) Completed - The university mission statement, which is the basis of graduate attributes, has been revised to include an element of globalisation.</p>
<p>11 Address challenges of globalisation</p> <p>a) The Audit Panel also noted that participation rates in the overseas exchange programme are relatively low and that some academic units face challenges in securing appropriate partners, establishing credit-transfer arrangements and accommodating inbound exchange students. The report acknowledges the ways in which the University is striving to increase opportunities for Ug students to experience international exposure via overseas work-integrated education (WIE) and service learning placements within the core curriculum. RPg students receive a budget for presenting at a minimum of one overseas conference and may also benefit from overseas attachment programmes. The report comments on the challenging implications for resource allocation presented by the University's ambitions in relation to globalisation. [Para i, Page 6]</p> <p>b) It has not proved possible, however, to achieve such positive results in relation to participation rates in the overseas exchange programme which remain relatively low. The Audit Panel was informed that certain Faculties/Schools and disciplines, especially professionally accredited programmes, find it more difficult than others to identify suitable exchange partner institutions, particularly those with whom it would be possible to establish credit-transfer arrangements. These programmes have to meet very strict requirements to get through local statutory bodies' accreditation. The University is circumventing these problems by looking into credit transfer mechanisms, particularly those on GUR subjects and generic subjects like science/engineering/ business for which it is relatively easy to arrange credit transfer. The University is organising</p>	<p>1) Review the current budget and resource position on student exchange, overseas WIE and service placement of departments to enhance the efficiency of resource deployment and propose additional budget and necessary support measures (hostel for inbound exchange students) for enhancing the globalisation.</p> <p>2) Engage Departments / Faculties / Schools to improve participation of students in offshore exchange and WIE activities while meeting professional accreditation requirements.</p> <p>3) Conduct workshops to programme leaders for devising measures to facilitate credit mapping and transfer within the undergraduate programmes.</p>	<p>Deputy President and Provost</p> <p>Vice President (Student and Global Affairs) assisted by Associate Vice President (Academic Support) and Associate Vice President (Undergraduate Programme)</p> <p>Vice President (Research Development) assisted by Associate Vice President (Research Support)</p> <p>Deans of Faculty and Heads of Department.</p>	<p>1) To be completed by end of 2018.</p> <p>2) To commence in 2017/18.</p> <p>3) To be completed by end of 2019/20.</p>	<p>2) Ongoing - An online system for processing credit transfer applications has been introduced, which will in the long run be developed into a central database for sharing credit transfer information among the departments.</p>

Progress on action items scheduled for completion by the end of 2017/18 or before

Relevant Findings of the Panel	Action Plan/Deliverables	Responsible Party	Timeline	Progress
<p>International Summer Schools to invite international students to visit the Hong Kong campus. In addition, the University is striving to provide opportunities for international exposure through service-learning projects and WIE placements at home and abroad. These experiences are closely monitored, evaluated and enhanced and are highly rated by students. [Para 7.21, Page 30-31]</p> <p>c) PolyU has invested significantly in the development of a global network of institutions and professional organisations to promote collaboration and to enhance the global perspectives of students and staff. Collaborative activities include student and staff exchanges, joint degree programmes leading to dual awards, research projects, participation in Massive Open Online Courses (MOOCs) and staff engagement with professional and other global organisations. The Audit Panel also heard that RPg students are given a budget for presenting a paper at an overseas conference, and that overseas attachment programmes are in place. Initiatives for overseas activities (including Cluster Area Requirements subjects, service-learning subjects and WIE) have been implemented and dedicated funds (such as the International Exchange and Partnership Fund and the PolyU Community Service Fund) have been set up to facilitate overseas activities for Ug students. However, the Audit Panel formed the view that the budgets for the Ug student exchange programme and the RPg budget for overseas activity will need to be increased further if they are to match up with the University's ambitions in relation to globalisation. [Para 7.17, Page 29-30]</p>	<p>4) Review the current practice of allocating resources to support research student attachment and conference attendance to enhance the efficiency of resource deployment.</p>		<p>4) To be completed by end of 2019/20.</p>	

Departmental Academic Advisor/Overseas Academic Advisor System

1. Introduction

- 1.1** Under the Departmental Academic Advisor (DAA) system, each Department should appoint a DAA to monitor and maintain the standard of the departmental work on its quality assurance system; academic programmes and subjects; teaching, learning and assessment. (see Section 4.1 below). The Department may update its DAA on its research and other scholarly activities if deemed appropriate.
- 1.2** In exceptional cases, and where the appointment of an External Examiner is a condition to fulfil requirements of the professional body, the request for the retention of the External Examiner should be put forth to the QAC(AD) Chairman for approval via the Faculty Dean/School Board Chairman concerned.

2. Appointment of Departmental Academic Advisors/Overseas Academic Advisors

- 2.1** Each Department shall normally have 1 Departmental Academic Advisor. Departments offering programmes in more than 1 specialised area and General University Requirement subjects may, with the endorsement of the relevant Faculty Dean/School Board Chairman and approval of the QAC(AD) Chairman, appoint one or more Overseas Academic Advisors if deemed necessary.
- 2.2** Nominations for Departmental Academic Advisors/Overseas Academic Advisors should be submitted by the Heads of Department to the Faculty Deans/School Board Chairmen for endorsement, and to the QAC(AD) Chairman for approval. The nominations should contain information on the Departmental Academic Advisors/Overseas Academic Advisors' background and employment history, plus information on the Departmental Academic Advisors/Overseas Academic Advisors' expected contributions to the Departments with regard to their expertise. Please refer to [Annex I](#) for a sample of the Nomination Form to be used.
- 2.3** Appointment of a Departmental Academic Advisor/an Overseas Academic Advisor will normally initially be made for a term of 3 years, with the possibility of renewal for another 3-year term. The maximum period of appointment should not exceed 6 years. A list of Departmental Academic Advisor/Overseas Academic Advisor appointments should be presented to the Quality Assurance Committee (Academic Departments) for information, after the commencement of each academic year.
- 2.4** Departmental Academic Advisors may be appointed either locally or from overseas, but the appointment of overseas Departmental Academic Advisors is strongly encouraged to provide an enhanced international perspective.
- 2.5** Departmental Academic Advisors/Overseas Academic Advisors should be invited to visit the Department for a minimum of 3 days, at least once every two to three years before the Review Panel exercise.
- 2.6** Before a nomination for the appointment is made to the Faculty Dean/School Board Chairman, the nominee should be approached informally by the Head of the Department to determine whether he/she would be willing to accept. In this initial approach, it must be made clear to

the nominee that the approach is in the nature of an enquiry and is not a formal commitment, either on the part of the University or the nominee.

2.8 The University and/or the Departmental Academic Advisor/Overseas Academic Advisor may choose to shorten the period of appointment, provided that due notice has been given.

2.9 Departmental Academic Advisors/Overseas Academic Advisors are responsible for the continuous monitoring of a Department's work on its quality assurance system; academic programmes and subjects; teaching, learning and assessment. Departments may update their DAAs/OAAs on their research and other scholarly activities if deemed appropriate.

3. Criteria for Departmental Academic Advisor/Overseas Academic Advisor Appointments

3.1 Candidates proposed for appointment as Departmental Academic Advisor/Overseas Academic Advisor should be of high academic and/or professional standing. They should possess expertise appropriate to the Department/discipline in question, and should be the persons from whom the Department can seek advice on academic matters related to curriculum planning, subject development, quality assurance, academic standards of programmes and quality of teaching, learning and assessment.

3.2 Departmental Academic Advisors/Overseas Academic Advisors are expected to be currently active in their profession. For candidates nearing the age of retirement, their term of office should be determined so as not to extend by more than 1 year beyond their expected time of retirement from full-time employment, unless they remain active in their profession.

3.3 The standard of cognate study programmes in the DAA/OAA's current university/institution is one of the factors for considering their suitability for appointment.

3.4 Departmental Academic Advisors/Overseas Academic Advisors are also expected to complement the international benchmarking efforts of PolyU, at both the programme and subject levels.

4. Departmental Academic Advisor/Overseas Academic Advisor Duties

4.1 The Departmental Academic Advisor/Overseas Academic Advisor is expected to give advice and provide international benchmarking against their own institutions or other international peers where appropriate, to the Department on the following aspects of the Department's quality assurance work:

(i) *Departmental quality assurance system*

- feedback mechanism from students, employers, External Examiners (if any), etc.
- action on feedback

(ii) *Academic programmes and subjects (including self-financed programmes)*

- academic standards of programmes of study against the University's overarching institutional learning outcomes
- curriculum design, monitoring and review

- ❑ Programme Learning Outcomes Assessment Plans (LOAP) and results; benchmarking of programme and subject outcomes, both intended and achieved, relative to international standards
- ❑ syllabuses and teaching materials of sample subjects (including GUR subjects)
- ❑ service teaching provided by the Department

(iii) *Teaching, learning, and assessment*

- ❑ alignment of teaching, learning and assessment with intended programme and subject learning outcomes
- ❑ learning environment, academic support services
- ❑ student learning experience
- ❑ appropriateness of standards in examinations and other forms of continuous assessment
- ❑ student achievement against the academic standards of their programmes of study

4.2 Departmental Academic Advisors/Overseas Academic Advisors should submit a report to the Heads of Departments within 6 weeks after their departmental visit. The report should contain their findings and recommendations on the areas listed in Section 4.1 above, plus any other comments they may wish to make. A copy of the Report Form is in Annex II. The report, to be copied to the Faculty Dean/School Board Chairman and QAC(AD) Chairman, will be considered and discussed by the Faculty/School Board. The Department will also submit its comments to the Faculty/School/College Board, including any actions it intends to take in response to the report.

5. Information to be Made Available to Departmental Academic Advisors/Overseas Academic Advisors

The Department should provide sufficient information to Departmental Academic Advisors/Overseas Academic Advisors to facilitate them in carrying out their duties. The documents should normally be those that have already been prepared, for examples, annual programme review reports, sample subject syllabi, examination papers and marked scripts, and should include information about the University's philosophy and position on quality assurance, teaching and learning, and other relevant policy areas.

6. Administrative Arrangements

All administrative arrangements, including liaison with the Departmental Academic Advisor/Overseas Academic Advisor, arrangement of the visit, processing of payment arrangements, forwarding of the Departmental Academic Advisor/Overseas Academic Advisor's report to the Faculty Dean/School Board Chairman and QAC(AD) Chairman, submission of the report together with the Department's response to the Faculty/School Board, etc., will be made by the Department.

7. Honorarium for Departmental Academic Advisors/Overseas Academic Advisors

7.1 An annual honorarium will be paid to Departmental Academic Advisors/Overseas Academic Advisors after the completion of their duties, including the submission of the annual report. Request for payment to Departmental Academic Advisors/Overseas Academic Advisors should be made on the Payment Form, a copy of which is provided as Annex III.

7.2 For overseas Departmental Academic Advisors/Overseas Academic Advisors, the University will cover the cost of their visit to Hong Kong. They will be given a lump sum to cover travel, hotel accommodation, and airport tax, as well as a subsistence allowance.

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NOTE: Only Annex II (template for DAA report) is included.

**Report Form for Departmental Academic Advisor (DAA) /
Overseas Academic Advisor (OAA)
(201__/201__)**

Name of DAA /OAA: _____

Department of _____

The Hong Kong Polytechnic University would appreciate submission of your report with findings and recommendations listed under the following headings:

1. Departmental quality assurance system
2. Academic programmes and subjects (including self-financed programmes)
3. Teaching, learning, and assessment
4. Other focus areas as requested by the Department (optional)
5. Any other comments (optional)

Please use the template overleaf for the report.

Please use this form as a cover sheet to your report and submit your report using the above headings to The Head, Department of _____, The Hong Kong Polytechnic University, Hunghom, Kowloon, Hong Kong, within 6 weeks after your visit to the Department.

(DAA/OAA Form 2)
08/2018

DAA/OAA Report Template

Please give advice on, and benchmark against your own institutions or other international peers, the following aspects of the Department's work:

1 Departmental quality assurance system

Please comment on all of the following based on relevant evidence:

- feedback mechanism from students, employers, External Examiners (if any), etc.
- action on feedback

2 Academic programmes and subjects (including self-financed programmes)

Please comment on all of the following based on relevant evidence:

- academic standards of programmes of study against the institutional learning outcomes
- curriculum design, monitoring and review
- Programme Learning Outcomes Assessment Plans (LOAP) and results; benchmarking of programme and subject outcomes, both intended and achieved, relative to international standards
- syllabuses and teaching materials of sample subjects (including GUR subjects)
- service teaching provided by the Department (if applicable)

3 Teaching, learning, and assessment

Please comment on all of the following based on relevant evidence:

- alignment of teaching, learning and assessment with intended programme and subject outcomes
- learning environment, academic support services
- student learning experience
- appropriateness of standards in examinations and other forms of continuous assessment
- student achievement against the academic standards of their programmes of study

4 Other focus areas as requested by the Department (optional)

5 Any other comments (optional)

**Academic Advisor System for the
College of Professional and Continuing Education**

1. Introduction

1.1 As a self-financing college of The Hong Kong Polytechnic University, College of Professional and Continuing Education (CPCE) is made up of two educational units: namely the Hong Kong Community College (HKCC) and the School of Professional Education and Executive Development (SPEED). CPCE Management decided to introduce an Academic Advisor system, which is consistent with the Departmental Academic Advisor/Overseas Academic Advisor system of the University, with regard to their duties.

2. The Appointment of Academic Advisors at CPCE

2.1 Academic Advisors will be appointed on the basis of academic disciplines. Their role is to give advice to HKCC, SPEED and the relevant academic cluster/division on academic activities falling within their area of expertise.

2.2 In consultation with the Directors of HKCC and SPEED, the Head of Cluster/Division will identify the academic disciplines within the Cluster/Division for the appointment of Academic Advisors. Following consultation with the Directors of HKCC and SPEED, nominations for Academic Advisor should be submitted by the Cluster/Division Head to Dean(PCE) for endorsement, and to the QAC(AD) Chairman for approval. The nominations should contain information on the Academic Advisor's background and employment history, plus information on the Advisor's expected contributions to the academic activities of the relevant CPCE units.

2.3 Academic Advisor appointments will typically be made for an initial term of 3 years, with the possibility of renewal for another 3-year term. The maximum period of appointment should not normally exceed 6 years.

2.4 Academic Advisors can be appointed either locally or from overseas. Overseas Academic Advisors are encouraged to provide an enhanced international perspective.

2.5 Academic Advisors should be invited to visit CPCE and its units for a minimum of 3 days, at least once every two to three years before the Review Panel exercise.

2.6 Prior to nomination, potential Academic Advisors should be approached informally by the Head of Cluster/Division to see if s/he is willing to serve. In this process, it must be made clear to the potential nominee that the approach is in the nature of an enquiry and is not a formal commitment on the part of CPCE.

2.7 CPCE and/or the Academic Advisor may choose to shorten the period of appointment, provided that due notice is given.

3. Criteria for Academic Advisor Appointments

- 3.1** Candidates proposed for appointment as Academic Advisor should be of high academic and/or professional standing. They should possess expertise appropriate to the academic discipline in question, and should be in a position to provide advice on academic matters related to curriculum planning, subject development, quality assurance, academic standards of programmes and quality of teaching, learning and assessment.
- 3.2** Academic Advisors are expected to be currently active in their profession. The term of office for candidates nearing retirement age should be determined so as not to extend more than 1 year beyond their expected time of retirement from full-time employment, unless they are still active in their profession.
- 3.3** The standard of cognate study programmes in the Academic Advisors' current university/institution is one of the factors in considering their suitability for appointment.
- 3.4** Academic Advisors are also expected to complement the international benchmarking efforts of PolyU, at both the programme and subject levels.

4. Duties of Academic Advisors

- 4.1** An Academic Advisor is expected to give advice and provide international benchmarking against their own institutions and other international peers where appropriate, to clusters/divisions on the following aspects of their quality assurance work:

(i) *Quality assurance system*

- feedback mechanism from students, articulation partners, employers, External Examiners, etc.
- action on feedback

(ii) *Academic programmes and subjects*

- academic standards of programmes of study against the University's overarching institutional learning outcomes
- curriculum design, monitoring and review
- articulation pathways within CPCE
- Programme Learning Outcomes Assessment Plans (LOAP) and results, if appropriate; benchmarking of programme and subject outcomes, both intended and achieved, relative to international standards
- syllabuses and teaching materials of sample subjects (including GUR/GE subjects where appropriate)

(iii) *Teaching, learning, and assessment*

- alignment of teaching, learning, and assessment with intended programme and subject learning outcomes
- the learning environment, academic support services
- student learning experience
- appropriateness of standards in the examination and other forms of continuous assessment
- student achievement against the academic standards of their programmes of study

- 4.2** Academic Advisors should submit a report to the Dean(PCE) within 6 weeks after their visit to CPCE and its units. The report should contain their findings and recommendations on the areas listed in Section 4.1 above, plus any other comments they may wish to make. The report, to be copied to the Heads of Cluster/Division and the QAC(AD) Chairman, will be considered and discussed by the College Board. The Head of Cluster/Division, in consultation with the Directors of HKCC and SPEED, will also submit to the College Board comments and any actions to be taken in response to the report.

5. Information to be Made Available to Academic Advisors

The Head of Cluster/Division, in conjunction with the Directors of HKCC and SPEED, should provide sufficient information to Academic Advisors to facilitate them in carrying out their duties. The documents should normally be those that have already been prepared, for examples, annual programme review reports, sample subject syllabi, examination papers and marked scripts, and should include information about CPCE's philosophy and position on quality assurance, teaching and learning, and other relevant policy areas.

6. Administrative Arrangements

All administrative arrangements, including liaison with the Academic Advisor, visit arrangements, processing of payment arrangements, forwarding of the Academic Advisor's report to the Dean(PCE), and submission of the report together with the response to the College Board, etc. will be coordinated by the Cluster/Division, in collaboration with HKCC and SPEED.

7. Honorarium for Academic Advisors

- 7.1** An annual honorarium will be paid to Academic Advisors after the completion of their duties, including the submission of the annual report.
- 7.2** In the case of overseas Academic Advisors, CPCE will cover the cost of their visit to Hong Kong. They will be given a lump sum to cover travel, hotel accommodation, airport tax, and a subsistence allowance.

Aug 2018

Guidelines on the Departmental Review System for Academic Departments

Introduction

1. Starting from the 2008/09 academic year, the University has introduced a new quality assurance (QA) mechanism for academic departments, namely the Departmental Review (DR) system, to replace the Departmental Assessment (DA) system, under which all academic departments had completed 2 rounds of a DA exercise since the system was implemented in 1996/97. During the 2017/18 academic year, the DR system underwent a major revamp, resulting in a more simplified structure with its underlying processes streamlined. It is anticipated that the revamped DR system can better integrate with other existing QA systems that support the work of a Department, and bring about more synergy with our international benchmarking and branding efforts, while at the same time simplifying the QA procedures at the departmental level.

Purposes and Focus of the Departmental Review System

2. The Departmental Review (DR) system aims to serve 2 main purposes:
 - (i) To be an instrument for quality assurance and enhancements in academic departments; and
 - (ii) To be a major input for international benchmarking of programmes and subjects in academic standards; and in quality of teaching, learning and assessment.
3. The focus of the Departmental Review exercise will be more on quality assurance and enhancements, and not solely on quality assessments or evaluating a Department's past performance. It will also focus on international benchmarking to align with our strategic vision to become a world-class university.

Review Cycle

4. Each cycle of a Departmental Review will comprise 6 years. For the first 5 years, preparation for the review will be undertaken through visits by the DAA and OAAs (if any), and their subsequent reports. The comprehensive review will be undertaken in the 6th and final year of the review cycle, and a Review Panel, with ad hoc Independent Advisors, an internal academic member, and other members if deemed necessary will be set up for this specific purpose. In addition, a member of AS will be appointed as an observer with no voting right to the Panel during a trial period of 3 years until 2021.

Review Mechanism

5. *Appointment of DAA and OAAs*
 - 5.1 A leading academic from reputable local or overseas universities will be invited by the Department to serve as its Departmental Academic Advisor (DAA).
 - 5.2 Depending on the diversity of its programme or discipline portfolio, the Department has the flexibility in deciding whether any additional leading academics from reputable overseas universities need to be invited to serve as its Overseas Academic Advisors (OAAs).

- 5.3 An OAA will perform the same duties as a DAA as mentioned in Sections 6.1 to 6.4 below.
- 5.4 From the 2018/2019 academic year, all newly appointed DAAs and OAAs will not serve on the Review Panels of the DR exercises.

[Note: For CPCE, academic advisors are appointed on a broad discipline rather than on a departmental basis, and they are expected to oversee the activities of both HKCC and SPEED within the broad discipline. The operational guidelines of the Academic Advisor System for CPCE are attached in Appendix E.]

6. *Visits of the DAA and OAAs (if any) in the first 5 years of each review cycle*
 - 6.1 The DAA and OAAs will be invited to visit the Department for a minimum of 3 days, at least once every two to three years before the Review Panel exercise.
 - 6.2 After each visit, the DAA and OAAs will present a comprehensive report to the Faculty Dean/School Board Chairman on the Department's work relating to its quality assurance system; academic programmes and subjects; teaching, learning and assessment, and recommend how the Department can further be enhanced in terms of benchmarking against the institutions the DAA and OAAs come from or other international peers where appropriate. Since another QA mechanism, i.e. the Annual Operation Plan exercise, will be retained, the DR exercise/reports will also provide a forum for the Faculty Dean/School Board Chairman to comprehensively review a Department's performance over the years.
 - 6.3 The DAAs and OAAs' visits should, as far as practicable, be scheduled to tie in with a Departmental Advisory Committee (DAC) meeting, to enable the DAAs and OAAs to share with DAC members their observations pertinent to the academic activities and the future development of the Departments, and for the DAAs and OAAs to gauge departmental needs from an industry perspective. *(This Section is also applicable to CPCE.)*
 - 6.4 When the DAA/OAA is not visiting the Department in a particular year, he/she will continue to provide comments on different aspects of academic programmes and subjects; teaching, learning and assessment, as appropriate.
7. *A comprehensive review exercise in the 6th year on a Departmental or Faculty basis*
 - 7.1 In the 6th year of each review cycle, a comprehensive review exercise will be undertaken by a Review Panel comprising the Faculty Dean and School/College Board Chairman (as the Panel Chairman).
 - 7.2 If the Review is undertaken on a Departmental basis, a minimum of 2 ad hoc Independent Advisors from reputable overseas universities (or at least 2 ad hoc Independent Advisors for HKCC/SPEED) will be invited to serve on the Panel, whereas if the Review is conducted on a Faculty basis containing all or a number of Departments offering cognate programmes within the Faculty, a minimum of 3 ad hoc Independent Advisors will be engaged. In both scenarios, an internal academic member from other Faculty/School will also be invited. The Faculty Dean and School/College Board Chairman will decide whether the addition of other members (who may be a DAC member from industry, or a CPCE Advisory Committee member from industry for HKCC/SPEED) will be beneficial to the Review exercise. In addition, a member of AS will be appointed as an observer with no voting right to the Panel

during a trial period of 3 years until 2021, facilitating the Department's transition to the revamped DR process.

- 7.3 The review exercise to be undertaken by the Review Panel will be for a duration of a minimum of 1 day for a Departmental-based review, or a minimum of ½ day per Department for a Faculty-based review. The Review Panel will take account of (1) a brief self-evaluation document prepared by the Department, and (2) the reports submitted by the DAA and OAAs (if any) during the previous 5 years, and how the Department has addressed the issues raised therein to assure and enhance the academic standards and quality of its programmes, subjects and student learning experience. The Review Panel will also conduct interviews with departmental leaders, staff and students; relevant industry representatives, and alumni where appropriate, and will come up with an overall report on the review exercise.

8. *Focus on international benchmarking*

- 8.1 To achieve the purpose of international benchmarking, the DR system requires the appointment of ad hoc Independent Advisors from reputable overseas universities who will then serve as key Review Panel members.

- 8.2 The ad hoc Independent Advisors will comment on the academic standards of programmes and subjects; quality of teaching, learning and assessment; benchmarking against those offered by their own institutions or other international peers where appropriate.

- 8.3 The following are the essential parameters to be measured against the benchmarked institutions:

- (i) Academic programmes (including subjects)
- (ii) Quality of students
- (iii) Student learning experience and outcomes

- 8.4 With regard to 8.5(i) on academic programmes, the Review Panel is required to comment on the baseline standard of the academic programmes. There should also be deliberations at the subject level including comments on the syllabuses, teaching materials, and assessments of some sample subjects (including GUR subjects), and the benchmarking of the programme and subject outcomes, both intended and achieved, relative to international standards. A template for the Department Review (DR) Report is attached in Annex I.

9. *Departmental response*

- 9.1 The Department will prepare a response to the DR report by the Review Panel, which will then be considered by the Faculty/School/College Board. In areas where the Department does not deem it appropriate to take the Review Panel's advice, the Faculty/School/College Board will adjudicate on the course of action to be adopted.

Involvement of Academic Department

10. *Nomination of DAA, OAA (if any) and ad hoc Independent Advisors*

- 10.1 In the case of the appointment of the DAA/ OAA, and ad hoc Independent Advisors the nomination should be submitted to the Chairman of the QAC(AD) for approval via the

Faculty Dean/School Board Chairman. For details of the DAA/OAA and Independent Advisor appointment and nomination form, please refer to *Appendix D*. Further details of the appointments of Academic Advisors for CPCE are given in *Appendix E*.

10.2 Under both the Department-based and Faculty-based DR, each academic Department shall submit its nomination of a minimum of 2 leading academics from reputable overseas universities to serve as ad hoc Independent Advisors on the Review Panel to the Chairman of the QAC(AD) for approval via the Faculty Dean/School Board Chairman. For the Faculty-based DR, the Faculty/School Board Chairman will also decide on the number of ad hoc Independent Advisors, subject to a minimum of 3 for the approval of the Chairman of the QAC(AD).

11. *Documentation requirements*

11.1 An academic Department under review will not be required to prepare any additional documentation for the DAA and OAA's visits. DAA and OAA will review the annual programme review reports, sample subject syllabi, examination papers and marked scripts. For the 6th year Review Panel exercise, the Department will only be required to prepare a brief self-evaluation document, and to collate any documentation previously prepared, for examples, DAA and OAA's reports as part of the quality assurance and enhancement procedures.

12. *Response to DR report*

12.1 The academic Department shall submit its response to the DR report made by the Review Panel to the respective Faculty/School/College Board for consideration (Ref. Section 9.1). Since the Board may need to make a decision on certain issues, and to ensure the 'objectivity' of this process, the Faculty/School/College Dean (as owner of the DR system) can decide whether the Head of Department and any other departmental representatives should be excused from the deliberations (*For practical reasons, this section will not be applicable if the said SB meeting is to be chaired by the School Dean*).

12.2 The academic Department shall provide an interim update to the Faculty/School/College Board 3 years after the DR Panel exercise has been conducted.

Involvement of Faculty Dean and School/College Board Chairman

13. The Faculty Dean and School/College Board Chairman will be the owner of the DR system in the Faculty/School/College concerned. He/She will, at the recommendation of the Head of academic Department, endorse the appointment of ad hoc Independent Advisors and decide their number to serve as members of the Review Panel for the approval of the Chairman of QAC(AD).

14. For the Review Panel exercise in the final year of each 6-year cycle, the Faculty Dean and School/College Board Chairman will:

(i) chair the Review Panel;

(ii) nominate, for the approval of Chairman of QAC(AD) an internal member from another Department/School to serve as a member of the Review Panel;

- (iii) appoint a member of AS as an observer with no voting right to the Review Panel as a resource and liaison person, facilitating the Department's transition to the revamped DR process;
- (iv) invite, as deemed beneficial to the review exercise, a local industry member (who can be a DAC member from industry, or a CPCE Advisory Committee member from industry for HKCC/SPEED), to be a member of the Review Panel; and
- (v) present the Faculty/School/College report to QAC(AD) on the DR Panel exercise(s) conducted during the past year. A template for this Faculty/School/College Report is attached in Annex II.

15. The Faculty Dean and School/College Board Chairman will submit a written report to QAC(AD) on the comments/observations or recommendations gathered from an interim update 3 years after the DR panel exercise has been conducted.

Remuneration for DAA/ OAA and ad hoc Independent Advisor

16. The current remuneration package for external specialists will be applicable to the DAA, OAA and ad hoc Independent Advisor as follows:

- (i) *Departmental Academic Advisor* (DAA) [or Academic Advisor for CPCE] and Overseas Academic Advisor (OAA) will receive an honorarium per annum, as at present.
- (ii) *Ad hoc Independent Advisors* will receive an honorarium per annum, following the rate previously used for overseas panel members of a DR exercise.

17. For other expenses arising from their visits to an academic Department the DAA (or Academic Advisor for CPCE) and OAA will be reimbursed at the same rate currently applicable to all categories of external specialists.

Aug 2018

NOTE: Only Annex I (template for DR report) is included.

Departmental Review (DR) Report Template

Please benchmark the following aspects of the Department's work against your own institutions or other international peers:

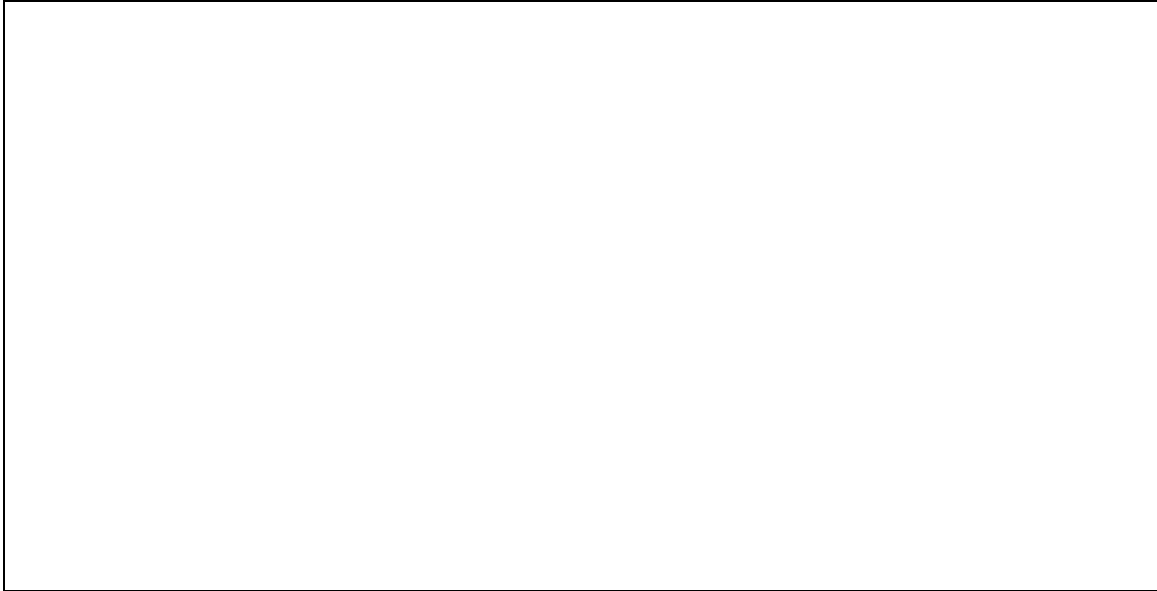
1 Academic programmes (including subjects)

Please comment on the baseline standard of the academic programmes, including but not limited to the following aspects:

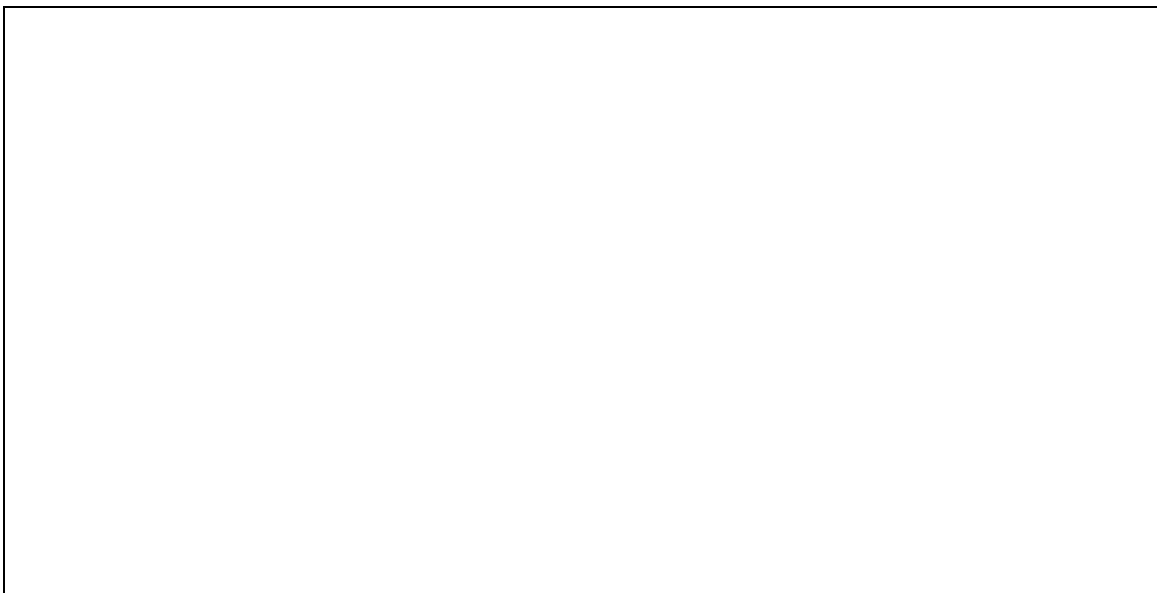
- the level of competence as represented by the programme learning outcomes, compared with relevant institutional learning outcomes (HD/Ug/TPg/RPg) and external reference points such as HKQF generic level descriptors, professional accreditation and registration requirements (e.g. AACSB, HKIE, NCHK), government recognitions, as appropriate
- the minimum number of credits required for graduation (and other graduation requirements, as appropriate), compared with international standards for similar programmes
- the threshold standards of subject level student assessments, compared with similar subjects in the benchmarked institution/programmes

There should also be deliberations at the subject level including comments on the syllabuses, teaching materials, and assessments of some sample subjects (including GUR subjects), and the benchmarking of the programme and subject outcomes, both intended and achieved, relative to international standards.

2 Quality of students



3 Student learning experience and outcomes



4 Other focus areas as requested by the Department (optional)

5 Any other comments (optional)

DRAFT POLYU INSTITUTIONAL SUBJECT GRADING DESCRIPTORS (TO BE REFINED)

Subject grade	Short description	Elaboration on subject grading description
A	Excellent	Demonstrates excellent achievement of intended subject learning outcomes by being able to skillfully use concepts, solve complex problems, shows innovative and critical thinking in unfamiliar situations; and to express the synthesis of ideas or application in a manner that is logical and comprehensive.
B	Good	Demonstrates good achievement of intended subject learning outcomes by being able to use the appropriate concepts, handle problems and materials encountered in the subject, analyzing issues critically and making well-grounded judgements in familiar or standard situations in a manner that is logical and comprehensive.
C	Adequate/Acceptable/ Satisfactory	Demonstrates adequate/acceptable/ satisfactory achievement of intended subject learning outcomes by being able to handle relatively simple problem, shows some capacity for analysis, and making judgements in most (but not all) familiar and standard situations in a manner that is broadly correct but is fragmented.
D	Marginal	Demonstrates marginal achievement of intended subject learning outcomes by being able to deal with relatively simple problems, make basic comparisons, connections and judgments, to state and sometimes apply the principles of the subject matter learnt in the subject to some simple and familiar situations.
F	Fail	Demonstrates inadequate achievement of intended learning outcomes by poor knowledge and understanding of the learning outcomes, no evidence of analysis, often irrelevant or incomplete.

Note 1: Marking rubrics aligned with these grade descriptors need not include all aspects of the grade descriptor

Note 2: Marking rubrics aligned with these grade descriptors may include other aspects aligned with particular subject matter or field of study requirements but are not included in the grade descriptor

Marking rubrics aligned with these Grade Descriptors may take one of three suggested forms:

1. Holistic marking rubrics
2. Analytic marking rubrics
3. Item structure marking rubric

The holistic and analytic rubrics may be appropriate to assessment items asking for open ended responses such as essays, research reports, oral presentations, capstone reports etc. – qualitative responses

The item structure rubric may be appropriate to assessment items composed of parts of increasing complexity such as more quantitative items, with each part aligned with the marking rubric descriptor - quantitative responses

Learning Outcomes for Graduates of Research Postgraduate Programmes

Policy and Guidelines

1. Background
 - 1.1 The PhD and MPhil degree programmes aim to provide rigorous training to students who aspire to become researchers or scholars capable of conducting independent and original research, and producing research findings that are relevant and significant to their chosen field of specialisation. The objectives of the programme of study are to equip students with the knowledge, skills and abilities to perform a piece of investigative work of substance with rigour and wit.
 - 1.2 Upon consultation with departments in May 2017, the University arrived at a set of broad intended learning outcomes to serve as a common basis for research postgraduate programmes. This document specifies the broad learning outcomes and clarifies the policy and guidelines regarding the specification of learning outcomes for research postgraduate programmes.
2. Policy and Guidelines
 - 2.1 The intended learning outcomes detailed in this document apply to students enrolled on all research postgraduate programmes, irrespective of the mode of delivery (whether they are full-time or part-time) and expected length of study.
 - 2.2 Departments and programme teams are expected to interpret the intended learning outcomes in the context of their discipline and consider them alongside the society's expectations in the formulation of programme outcomes.
3. Institutional Learning Outcomes (Research Postgraduate Programme)
 - 3.1 Three learning outcomes are believed to be broadly applicable to all research postgraduate programmes – all graduates of research postgraduate programmes are expected to be able to demonstrate research and scholarship excellence, originality, and lifelong learning capability. Sections 3.2 to 3.4 articulate the expected level of attainment of these learning outcomes for graduates of research postgraduate programmes. Where appropriate, programmes are expected to contextualise the learning outcomes so that they become a meaningful and integral part of the learning experience that a student would gain through the programme.
 - 3.2 Research and Scholarship Excellence:

MPhil graduates of PolyU should demonstrate advanced competence in research methods, possess in-depth knowledge and skills in their area of study and attain the ability to apply their knowledge and act as leaders in analyzing and solving identified issues and problems in their area of study. They should also be able to disseminate/communicate effectively their research findings in publications, conferences and classrooms.

PhD graduates of PolyU should demonstrate state-of-the-art expertise and knowledge in their area of study, possessed superior competence in research methodologies and contribute as leaders in creating new knowledge through analysis, diagnosis and

synthesis. They should also be able to disseminate/communicate their research ideas and findings effectively and efficiently in publications, conferences and classrooms.

3.3 Originality:

MPhil graduates of PolyU will be versatile problem solvers with good mastery of critical and creative thinking methodologies. They can generate practical and innovative solutions to problems in their area of study.

PhD graduates of PolyU will be able to think out of the box. They will be innovative problem solvers with excellent mastery of critical and creative thinking methodologies. They will create original solutions to issues and problems pertaining to their area of expertise and the society in general.

3.4 Lifelong learning capability:

MPhil graduates of PolyU will have an enhanced capability for continual professional development through inquiry and reflection on knowledge in their area of study.

PhD graduates of PolyU will demonstrate the ability to engage in an enduring quest for knowledge and an enhanced capability for continual academic/professional development through self-directed research in their area of study.

**The Hong Kong Polytechnic University
School of Hotel and Tourism Management**

Report of equivalence checks on the Doctor of Hotel and Tourism Management (D.HTM)
programmes offered in Hong Kong and mainland China

1. Equivalence in the nature and volume of the learning in completing the programme

A thorough comparison was conducted between the definitive programme documents of D.HTM Hong Kong and D.HTM China.

As shown in **Appendix I**, the program structures of both programme are identical. Both D.HTM programmes consist of seven compulsory subjects (21 credits), two elective subjects (6 credits), a residential workshop (zero credit) and a thesis (24 credits). The compulsory subjects, residential workshop and thesis offered in both D.HTM programmes are the same.

The normal duration of study for part-time students is 5 years in both programmes. The admission requirements are also the same, except for those referring to English proficiency because the medium of instruction is bilingual (Chinese/English) in the case of the D.HTM China programme. In the D.HTM China programme, applicants are provided with the option of either meeting the Chinese mainland's College English Test (CET) Band 6, or of passing an English written test equivalent to CET Band 6. Both programmes comply with PolyU academic regulations and procedures and hence with the regulations applicable to assessment and progression.

The two programmes have identical requirements for graduation and for the granting of an award. The intended learning outcomes are also equivalent for both programmes.

2. Grade comparability on D.HTM subjects

The subject lecturers concerned, regardless of the D.HTM Hong Kong and D.HTM China, are required to deliver the subject contents in accordance with the subject intended learning outcomes, assessment tasks and assessment rubrics stipulated on the subject description form. It is noted that the assessment criteria and subject intended learning outcomes are also aligned in the rubrics.

It can be demonstrated in the schemes of work for HTM6008 (Hotel and Tourism Management Research Seminar) among the D.HTM HK and D.HTM China programmes. The subject lecturer used the same assessment tasks including research project, written report and class participation to evaluate students' performance and determine whether students managed to satisfy particular subject learning outcomes. They also provided criterion-referenced rubrics in different assessment tasks in the scheme of work for students' reference.

Given the above, it can be shown that a particular letter grade given to a student should be commensurate with his/her academic performance according to the criterion-referenced rubrics stipulated in the scheme of work. Students' sample works at different grade level provided in **Appendix II** were also compared and it was found that the grade given to students represented the corresponding academic standard.

However, it was noted that the volume, criteria and weightings of the same assessment task across these two programmes could be slightly different. In other words, the subject lecturer was bestowed academic liberty to adjust the academic criteria despite following the stipulations on the subject description form.

The subject description form and schemes of work for HTM6008 are presented in **Appendix III - V** for reference.

3. Classification comparability

Neither D.HTM programme applies an award classification to students who are eligible for graduation. Furthermore, the D.HTM theses which may be considered as capstone projects are also ungraded (students receive no classification). Point three is considered to be inapplicable to the two D.HTM programmes.

4. Comparability of teacher qualifications

A list of the subject lecturers in both programmes is provided in **Appendix VI**. In the D.HTM China programme, all subjects were taught by full time SHTM academic staff members with the exception of two compulsory subjects - HTM6002 Theories and Concepts in Tourism and HTM6006 Quantitative Research Methods for Hotel and Tourism Management. The two subjects HTM6002 and HTM6006 were taught by full-time senior Zhejiang University (ZU) academic staff. One of the staff members is an internationally recognized full Professor and Director of the ZU Department of Tourism and Hotel Management, whilst another staff member is an Associate Professor who received her Doctor of Philosophy from SHTM and is hence a distinguished alumna.

The above arrangement is believed to ensure the equivalent nature and quality of teaching across both programmes.

5. Equivalence in QAE practice

Both programmes follow the same QAE procedures and generate equivalent documentation as listed in **Appendix VII**. The documentation in 2016/17 Academic Year can be provided for inspection purpose as and where necessary.

6. External confirmation

Since the D.HTM China programme was not yet offered at the time of the previous departmental review, the external confirmation of equivalence is inapplicable.

In the recent Departmental Academic Advisor (DAA) report in 2017, the DAA expressed no discrepancies or negative comment concerning the HK and China D.HTM programmes apart from some concern about the future staffing of thesis supervision in the China programme. The DAA provided a highly positive overall assessment on the quality of D.HTM-China programme. It was stated in the report that: *“so far the SHTM programmes on the mainland appear to be model examples of international programming and partnerships.”* Such complimentary remarks within the DAA assessment provide good evidence on how the two D.HTM programmes have been striving to ensure comparable and consistent quality of teaching and learning in both HK and China.

16 August 2018

NOTE: The equivalence report has seven appendices. Only the appendices on programme architecture (Appendix I) and quality assurance (Appendix VII) are included here.

School of Hotel and Tourism Management
Doctor of Hotel and Tourism Management (D.HTM)
(24036 - Hong Kong) & (24041 - China)

Programme name	Doctor of Hotel and Tourism Management (HK)	Doctor of Hotel and Tourism Management (China)
Mode of study	Mixed mode	Part-time
Normal duration	5 years (part-time) 2.5 years (full-time)	5 years (part-time) No full-time mode is available
Medium of Instruction	English	Bilingual (Chinese/ English)
Admission requirements	<p>Students should possess an MSc in Hotel and Tourism Management or equivalent.</p> <p>In addition, students are required to have:</p> <ul style="list-style-type: none"> • a minimum of one year of full-time teaching experience in tourism and/or hotel management at a recognized post-secondary institution plus at least one year of work experience at the supervisory or managerial level in the hotel, tourism or related industries; OR • substantial and relevant working experience (of normally not less than four years at the supervisory or managerial level in the hotel, tourism or related industries); OR • at least five years teaching experience in tourism and/or hotel management. • English language^ <ul style="list-style-type: none"> - A minimum score of 580 (paper based) or 237 (computer 	<p>Students should possess an MSc in Hotel and Tourism Management or equivalent.</p> <p>In addition, students are required to have:</p> <ul style="list-style-type: none"> • a minimum of one year full time teaching experience in tourism and/or hotel management in a recognized post-secondary institution plus at least one year of work experience at the supervisory or managerial level in the hotel, tourism or related industries; OR • substantial and relevant working experience (of normally not less than four years at the supervisory or managerial level in the hotel, tourism or related industries); OR • at least five years teaching experience in tourism and/or hotel management. • English language^ <ul style="list-style-type: none"> - A minimum score of 580 (paper based) or 237 (computer

Programme name	Doctor of Hotel and Tourism Management (HK)	Doctor of Hotel and Tourism Management (China)
	<p>based) or 92 (iBT based) in TOEFL; OR</p> <ul style="list-style-type: none"> - An overall band score of 6.5 in the IELTS. 	<p>based) or 92 (iBT based) in TOEFL; OR</p> <ul style="list-style-type: none"> - An overall band score of 6.5 in the IELTS; OR - Chinese mainland's College English Test (CET) Band 6 or above ; OR - A minimum score of 50% in the English written test equivalent to Band 6 of College English Test (CET-6).
Credit requirements for graduation	<p>Students are required to complete 51 credits for graduation. The 51 credits consist of a residential workshop (zero credit), seven compulsory subjects (21 credits), two electives subjects (6 credits) and a thesis (24 credits).</p> <p><u>Residential Workshop</u> (Zero credit)</p> <ul style="list-style-type: none"> • HTM6001 – Residential Workshop <p><u>Compulsory subjects</u> (21 credits - composed of 7 subjects, 3 credits each)</p> <ul style="list-style-type: none"> • HTM6002 – Theories and Concepts in Tourism • HTM6004 – Environmental Analysis and Strategies in Hotel and Tourism Management • HTM6005 – Asian Paradigm in Hospitality Management • HTM6006 – Quantitative Research Methods for Hotel and Tourism Management • HTM6007 – Qualitative Research Methods for Hotel and Tourism Management <p><u>Education/NTO Specialism</u> ^{Note}</p> <ul style="list-style-type: none"> • HTM6003 – Hotel and Tourism Management Education • HTM6008 – Hotel and Tourism Management Research Seminar <p><u>Industry Stream Specialism</u> ^{Note}</p>	<p>Students are required to complete 51 credits for graduation. The 51 credits consist of a residential workshop (zero credit), seven compulsory subjects (21 credits), two electives subjects (6 credits) and a thesis (24 credits).</p> <p><u>Residential Workshop</u> (Zero credit)</p> <ul style="list-style-type: none"> • HTM6001 – Residential Workshop <p><u>Compulsory subjects</u> (21 credits - composed of 7 subjects, 3 credits each)</p> <ul style="list-style-type: none"> • HTM6002 – Theories and Concepts in Tourism • HTM6004 – Environmental Analysis and Strategies in Hotel and Tourism Management • HTM6005 – Asian Paradigm in Hospitality Management • HTM6006 – Quantitative Research Methods for Hotel and Tourism Management • HTM6007 – Qualitative Research Methods for Hotel and Tourism Management <p><u>Education/NTO Specialism</u> ^{Note}</p> <ul style="list-style-type: none"> • HTM6003 – Hotel and Tourism Management Education • HTM6008 – Hotel and Tourism Management Research Seminar <p><u>Industry Stream Specialism</u> ^{Note}</p>

Programme name	Doctor of Hotel and Tourism Management (HK)	Doctor of Hotel and Tourism Management (China)
	<ul style="list-style-type: none"> • HTM6010 – Innovations in Hospitality Management Solutions • HTM6011 – Hotel and Tourism Senior Executive Seminars <p>Note: Students can select two subjects in either Education/NTO Specialism or Industry Stream Specialism. They can also choose any one of the subjects in each specialism.</p> <p><u>Elective subjects (6 credits)</u> Students can take any 2 subjects (3 credits each) from the following sets:</p> <ul style="list-style-type: none"> • Subjects from other specialism • HTM6009 – Independent Study in Hotel and Tourism Management • HTM6014 – Structural Equation Modeling • Specialist subjects from the other stream (students in the 'Academic/NTO' stream may select HTM 6010 and/or 6011 and students in the 'Industry' stream may select HTM6003 and/or HTM 6008) • Subjects from the MSc programmes • A maximum of one doctoral-level subject from outside the SHTM, subject to the approval of the Programme Leader <p><u>Thesis (24 credits)</u> The Thesis component consists of two subjects:</p> <ul style="list-style-type: none"> • HTM6110 – DHTM Thesis I (Proposal) (12 credits) • HTM6120 – DHTM Thesis II (Thesis) (12 credits) 	<ul style="list-style-type: none"> • HTM6010 – Innovations in Hospitality Management Solutions • HTM6011 – Hotel and Tourism Senior Executive Seminars <p>Note: Students can select two subjects in either Education/NTO Specialism or Industry Stream Specialism. They can also choose any one of the subjects in each specialism.</p> <p><u>Elective subjects (6 credits)</u> Students can take any 2 subjects (3 credits each) from the following sets:</p> <ul style="list-style-type: none"> • Subjects from other specialism • HTM6009 – Independent Study in Hotel and Tourism Management • HTM6012 – Quantitative Methods II for Hospitality and Tourism Management • Specialist subjects from the other stream (students in the 'Academic/NTO' stream may select HTM 6010 and/or 6011 and students in the 'Industry' stream may select HTM6003 and/or HTM 6008) • Subjects from the MSc programmes • A maximum of one doctoral-level subject from outside the SHTM, subject to the approval of the Programme Leader <p><u>Thesis (24 credits)</u> The Thesis component consists of two subjects:</p> <ul style="list-style-type: none"> • HTM6110 – DHTM Thesis I (Proposal) (12 credits) • HTM6120 – DHTM Thesis II (Thesis) (12 credits)
Intended learning outcomes	Same – all outcomes are identical	

Programme name	Doctor of Hotel and Tourism Management (HK)	Doctor of Hotel and Tourism Management (China)
Programme structure	Same – both D.HTM programmes consist of seven compulsory subjects (21 credits), two electives subjects (6 credits), a residential workshop (zero credit) and a thesis (24 credits).	
Curriculum	<p>The compulsory subjects, residential workshop and thesis offered in both D.HTM programmes are the same.</p> <p>The only difference is the pool of elective subjects^{Note} available for students' selection in each academic year.</p> <p>Note: Amid the elective subjects, HTM6014 - Structural Equation Modeling is offered in the prescribed curriculum of D.HTM Hong Kong programme while HTM6012 – Quantitative Methods II for Hospitality and Tourism Management (HTM6012) in D.HTM China programme. The predecessor of HTM6014 is HTM6012. Except the subject title and pre-requisite requirements, all subject contents including the intended learning outcomes, teaching methodology and assessment methods are identical in these two subjects. In D.HTM Hong Kong programme, the subject title was changed with an aim to better reflect the subject contents, coupled with a few minor updates on the pre-requisite requirements. Nevertheless, the changes concerned were not updated in the D.HTM China programme because such changes were deemed relatively minor and not necessarily sent to the Ministry of Education in mainland China for review.</p>	
Regulations for assessment and progression	Same – in compliance with the PolyU's academic regulations and procedures	
Award to which the programme leads	Same	

^ For applicants whose English is not their first language or whose bachelor's/ master's degree is not obtained from an English medium institution.

School of Hotel and Tourism Management
Doctor of Hotel and Tourism Management (D.HTM)
(24036 - Hong Kong) & (24041 - China)

No.	Document	D.HTM (Hong Kong)	D.HTM (China)
1	Annual programme review reports	✓	✓
2	Programme learning outcome assessment plans (P-LOAPs)	✓	✓
3	Programme Learning outcomes assessment results	✓	✓
4	Follow-up actions in AOPS	✓	✓
5	Minutes of Student-Staff Consultative Group meetings	✓	✓
6	SARP	✓	✓
7	BoE	✓	✓
8	Board's approval for admitting applicants without the approved qualifications	✓	✗

✗ : D.HTM China programme does not have any applicants without the approved qualifications since its inception.

Note: The above-mentioned documentation in 2016/17 Academic Year can be provided for inspection purpose as and where necessary.



Modernizing Learning Spaces at PolyU: A Guide for Learning Space Needs, Design Principles and Standards

Professor Iris F.F. Benzie

The report was discussed at the Working Group on Innovative Learning Spaces and minor revisions were made.

Report on

Modernizing Learning Spaces at PolyU: A Guide for Learning Space Needs, Design Principles and Standards

by

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June 2017

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1. Executive Summary

PolyU aims to provide “*flexible, agile, technology-enabled learning environments that foster curiosity, innovation and creativity, support academic endeavours, afford collaborative and interdisciplinary learning opportunities and engage students in a welcoming community of learning*”. To achieve this, the traditional-style lecture theatres and classrooms will be transformed into modern, technology-enabled learning spaces and environments that will support innovative pedagogical approaches and promote student engagement. There will also be increased capacity and use of informal and ‘distributed’ learning spaces to facilitate learning outside of the formal classroom environment. To aid the processes of planning, designing, creating, overseeing and managing the new/renovated learning spaces needed by PolyU and to help in cost-containment, clear guiding principles and information on standards are required. It is these that this Report aims to provide.

In Section 2, background, scope, aims and purpose of the work are given. In Section 3, stakeholder perspectives, learning space needs analysis and benchmarking issues are reflected upon, as these influence planning, design and standards. In Section 4, there is discussion of the current learning space situation at PolyU, its Vision for the future, and the different types of learning spaces/environments and ‘learning precincts’ that are needed to support pedagogical innovations and embed the flexibility, connectivity and resilience needed to adapt to changes in the way that students learn and teachers teach. In Section 5, there are design tips for learning spaces in relation to pedagogical, technological and space issues, along with 100 guiding principles for planning, design, AV/IT provision, ambience and fitting out, management, oversight of and preparation for future developments in new/renovated learning spaces. A list of useful and detailed sources of further information on modern learning space design, AV/IT infrastructure, and technical standards for construction and fitting out of learning spaces is also given in Section 5. Section 6 presents a summary of the main recommendations with brief rationale for each.

The recommendations presented express the views of the Consultant, and are based on best practice and information from academic, professional and commercial sources of expertise and experience in modern learning space design, as well as the work of WG DCFELT/ILS. The information and recommendations in this Report are intended to act as a guide and resource to help PolyU modernize and ‘future proof’ its learning spaces, adopt cycles of review and action for continuous improvement, and create a welcoming, technology-enabled, adaptable, user-focused learning environment that will inspire and support pedagogical innovations and promote enquiry-based and sustainable learning in the years to come.

¹ As agreed in May 2017 by the PolyU 2018/19 – 24/25 Strategic Planning Sub-Working Group on Modernised Teaching and Learning Venues

2. Background, Scope, Aims and Purpose

Background

The traditional didactic mode of teaching is being replaced largely by more interactive, student-centred and innovative pedagogical approaches, increasingly supported by new forms of information technology and advanced audio-visual tools. The change from teacher-focused to student-centred education requires adaptations, flexibility, innovations and resilience in the physical and non-physical learning environments as well as re-thinking of learning support needs and facilities management services. Currently at PolyU, effective adoption of new educational approaches is hindered by the traditional, outmoded ‘fixed’ design of most of the existing general classrooms and lecture theatres. The learning environment needs to be revitalized to provide the diverse mix of modern and technology-enabled spaces needed for active, collaborative, effective and sustainable learning. In recognition of this, the Working Group on Development of Campus Facilities and Environment for Learning and Teaching (WG DCFELT) was set up by the Deputy President and Provost in September 2013, and was tasked with reviewing the existing learning spaces, soliciting change ideas, piloting the creation of new spaces and facilities, and advising on plans for future renovation and revitalization of the learning environment at PolyU. In 2016 the WG was renamed as the Working Group on Innovative Learning Spaces (WG ILS), and the Terms of Reference were expanded to include planning and overseeing the creation of new and upgraded learning spaces. To help steer the various processes and the different parties involved, and to help contain costs and meet stakeholder needs, it was agreed that guiding principles and standards for the design, creation, oversight and management of new/ renovated learning spaces are needed. This forms the context for this work and Report, in which recommendations are given in *blue italics text*.

Scope

This Report aims to provide a comprehensive and clear guide to aid the planning, design, creation, oversight and management of new/renovated learning spaces at PolyU. To contextualize and add value to the guiding principles and recommendation given, much consideration was given to the different types of learning spaces and environments needed in the modern university, their characteristics and purpose(s), and the needs and perspectives of the major stakeholders. Nonetheless, the scope of the work was limited due to time and resource constraints. Also, while the overall University learning environment encompasses the entire

Campus and extends to off-Campus access to PolyU resources such as Library facilities, the Learning Management System (currently Blackboard) and technology-enabled student-student and student-staff communication, among others, this Report focuses only on the facilities, spaces and tools that are directly related to learning and teaching activities and that are available on Campus to all students and staff. Spaces managed by individual academic units, teaching or research laboratories, project rooms and staff offices, as well as leisure and refreshment facilities are outside of scope. It is noted also that restrictions on space, pre-existing fixed structural features, funding limitations and other special considerations may mean that not all recommendations and guiding principles presented can be applied to every learning space.

The very rapid developments in AV/IT and in materials science, and changes in building laws and safety regulations mean that specifications for these components change, and what is fit for one particular space may not suit the needs of another. Therefore, for AV/IT elements, mechanical and electrical systems, construction materials, furnishings and finishes, the recommendations focus on guiding principles and desirable features. Detailed specifications for these components rightly fall within the remit of the University's specialized support units, such as the Information Technology Services Office (ITS), the Facilities Management Office (FMO), the Campus Development Office (CDO) and the Health, Safety and Environment Office (HSEO). It is noted that ITS produced a comprehensive inventory and guide for AV/IT learning space provision at PolyU, and this was endorsed by WG DCFELT/ILS. This document describes different levels (I, II, III) of provision for different learning spaces (please refer to Appendix 1 for a brief explanation of the different technology levels). ITS has a planned cycle of regular upgrades to keep the AV/IT guide and provision across all levels up-to-date and fit for purpose. Still, detailed specifications for fixtures and fittings such as construction materials, ventilation, sound and lighting systems, acoustics, projector and monitor resolution, screen sizes and materials, floor coverings, fabrics, paint finishes etc. are best left to the experts in the relevant fields². Nonetheless, these elements of learning space provision should adhere to the University agreed design principles and guidelines, meet internationally accepted norms and local legal requirements. Furthermore, their selection/purchase should be guided by best

² To help inform the decisions of these units, there are detailed guidelines and specifications on learning spaces design, construction, layout and furnishings from professional and commercial associations and organizations. A list of useful sites is given in Section 5 of this Report.

practice and what meets PolyU's needs, rather than being based mainly on cost or what has been used in the past.

Aims

The recommendations in this Report are made with the primary aim of facilitating the design, creation and management of new/renovated learning spaces and environments so that they meet the learning and teaching needs of the University in the next few years. Attention has been paid to 'future-proofing' the new learning spaces so they are resilient to change and remain fit for purpose despite the rapidly changing educational environment, and guiding principles, desirable features and standards were considered in relation to:

- Physical space – purpose, characteristics, and space per student requirements of the different types of learning space needed
- Design and layout - accessibility, adaptability, flexibility, mobility, visibility, lighting, sound, ambient noise, safety, and security
- Aesthetics – comfort, furnishings, colour, ambience, cleanliness, condition
- Connectivity – AV/IT facilities; 'virtual spaces'; layout of physical space for lines of sight, acoustics; connecting formal classroom learning to the informal learning spaces to create a 'seamless' community of learning
- Planning, management and learning support needs for renovated and innovative learning spaces and upgraded AV/IT provision

Purpose

The recommendations and comments in this Report put learning and teaching to the fore, and are presented in order to help guide the University in relation to the:

- Processes and principles by which new/renovated learning spaces are designed to be fit for purpose now and in the future
- Planning, design, creation, management and oversight of new/renovated learning spaces in cycles of continuous improvement
- Evaluation of new/renovated learning spaces in regard to their purpose and acceptability to major stakeholders
- Provision of an integrative platform of planning and support needed for the effective use, management, oversight and planning of new/renovated learning spaces for continuous improvement of the learning environment at PolyU

3. Focus and Approach: Information Sources, Stakeholder Considerations, Benchmarking and Building on Experience

Information Sources and Stakeholder Considerations

In preparing this Report, the Consultant reviewed the Minutes and decisions of the WG DCFELT/ILS³, examined feedback received on recently renovated learning spaces, and discussed various aspects of learning space design/standards with Members of the WG ILS, AVP(L&T) and the Director of ITS. The recommendations were informed also by a comprehensive visual audit of learning spaces, student and staff surveys of learning spaces, and an ITS audit of AV/IT provision of the 210 lecture theatres and general classrooms in PolyU. The Consultant participated actively in the three meetings of the Sub-Working Group on ‘Modernised Teaching and Learning Venues’ (held on 24th April, 27th April and 2nd May 2017), and in the WG ILS meeting of 31st May 2017. In addition, the Consultant sought information from leaders in the planning, design and creation of new and innovative learning spaces from the academic, professional and commercial arenas, and specific examples of design principles standards and desirable features of modernized and innovative learning spaces were identified.

The different needs and perspectives of the major stakeholders in the revitalization of the learning environment at PolyU were considered also (Table 1). The major stakeholders are the students, the staff and the University, but there are others. For students and staff, the quality of learning and teaching and a sense of belonging, satisfaction and well-being on Campus are key considerations in the design of new/renovated learning spaces. For the University, its alumni and partners, and for the wider community and University funders, effective forward planning for continuous improvement, financial responsibility, safety, cost-effectiveness, and providing exemplars of good practice in modern learning space provision with high student and staff satisfaction are vital reputational and accountability considerations. Other parties that have an accountability and reputational stake in the revitalization endeavour include CDO, FMO, ITS, HSEO, EDC, the Library, and other planning and support groups that are directly involved in any stage of planning, design, creation, evaluation, use and management of the renovated/new learning spaces/environments. External architects, design consultants and contractors all have

³ It is noted that the Consultant Chaired WG DCFELT from 2013 to 2016, and was a full time member of academic staff at PolyU for many years. The Consultant retired from her position of Chair Professor of Biomedical Science in September 2016.

a stake in relation to their reputation and professional standing, as these will suffer if the new/renovated space does not meet the client's needs.

A Note on WG ILS and the Need for a Co-ordinator of Learning Spaces and Support and a Consultant with education design/architecture background

The WG ILS, which has a membership of representatives from academic staff, Students' Union, ITS, EDC, Library, AS, CDO and FMO, offers a 'cross-functional team' to provide an integrative platform of planning, design, creation, promotion, support, management, evaluation and oversight of revitalized learning spaces. However, this is a complex combination of responsibilities, and all members of WG ILS have other roles and responsibilities to meet.

Therefore, to help drive the work of WG ILS it is recommended that a full-time Co-ordinator of Learning Spaces and Support and a Consultant with education design/architecture background are appointed.

The Consultant should work closely with WG ILS members and ensure continuity and consistency across all learning space renovation projects.

The Co-ordinator would be a member the WG ILS, and work closely with AVP (L&T) and WG ILS members and other key stakeholders to, among others:

- Facilitate communication between and help integrate the activities of all parties and units represented in WG ILS in relation to new/renovated learning spaces needs, planning, provision, evaluation and support
- Attend learning space workshops and conferences and bring back examples of good practice and innovative ideas
- Help evaluate, promote and showcase learning space developments, highlighting how they support innovative approaches to learning and teaching at PolyU and identifying areas for improvement
- Facilitate external networking with leaders in the field
- Gather innovative ideas from PolyU staff and students
- Identify how learning spaces are used for innovative teaching approaches and to support student engagement, and so help inform future plans for learning space renovation or refinement
- Perform a needs analysis for planning of new/renovated learning spaces, involving visual inspection and the views of students and staff, and with PolyU's strategic goals in mind
- Ensure that students and teaching staff are involved in the decision making around learning space renovation and support
- Follow-up on feedback/complaints received by WG ILS (directly and via individual support units) and communicate action taken or planned to the WG ILS and the wider PolyU community

Table 1. Needs and Perspectives of Different Stakeholders in the Modernization of Learning Spaces at PolyU

Stakeholder	Perspective	Needs
End Users (Students and Academic Staff)	Quality of learning and teaching; The wider student and staff experience (satisfaction, well-being, belonging); Perception of PolyU as Alma Mater and employer; Developmental opportunities in use of innovative learning spaces/facilities/tools	A range of modern and fit-for-purpose learning spaces/facilities/tools that meet international standards across various aspects, including space allocation, design, AV/IT provision, comfort, aesthetics, lighting, visibility, sound, access, safety, security, cleanliness and maintenance; Adequate and appropriate training and support in the use of learning spaces/facilities/tools; Information on learning space developments and the different types of new/renovated learning spaces are available, where to find them, and how these can be used; User-friendly, informative and flexible booking system; Simple communication route to WG ILS to provide views and suggestions on developments and improvements in learning spaces/facilities/tools, with effective feedback/follow-up loop; A sense of engagement with the planning process for future developments in learning spaces/facilities/tools
The University	Fiscal Accountability; Student satisfaction; Staff retention and development; Quality of educational provision; Continuous improvements; Reputation	Cost-effective, clear, integrative and effective processes for Campus revitalization, evaluation, management and oversight; New/renovated learning spaces and environments that fit with the 2018-25 Strategic Plan for adoption of more interactive, collaborative, blended, and technology-enabled learning; A clear understanding of international trends and standards in learning space provision, using networking, visits to leaders in the field and conferences, and membership of relevant associations for learning spaces and AV/IT infrastructure; Specific exemplars of best practice in new/renovated learning spaces/facilities/tools to showcase and use in promotional material for staff and student recruitment, annual reports, attracting donations etc. Effective means by which students and staff are engaged in learning space design and evaluation; An overall learning environment on Campus that students and staff find modern, comfortable, secure, well supported, fit-for-purpose and that they are happy to be part of; Improved KPIs for teaching quality and for student experience/satisfaction

Stakeholder	Perspective	Needs
UGC, Donors, Alumni and the wider Community that PolyU serves	Responsible and effective planning and use of funds for modern learning space provision; Quality of student experience; Reputation as a provider of world class education supported by good use of innovative pedagogical tools and approaches	Clear evidence of processes, guidelines and standards for responsible, cost-effective modern learning space planning, provision and management/oversight that meet the goals of the University's Strategic Plan; Specific examples to showcase of best practice in modern learning spaces/facilities/tools that support innovative pedagogical approaches; Improved KPIs in teaching quality and in the student experience
Learning and Teaching Support Units (ITS, EDC, Library, AS)	Reputation for delivery of effective training and support needs for innovative learning and teaching activities and use of new/renovated learning spaces/facilities/tools	Information on new/renovated learning spaces/facilities/tools and policy changes on desired patterns of pedagogical approaches to be introduced/used more at PolyU; A clear route to provide input into what these should be, and how best these can be introduced/used and supported for improving the quality of educational provision and the student experience; Information on latest developments in learning spaces/facilities/tools and booking systems, examples of best practice and effective support systems needed for these and the staff and student who use them; To be part of an integrative platform of learning spaces planning, design, management, support, and oversight within PolyU; Information and examples on best practices and developments in learning support in the modern university tertiary (which can be obtained via networking, membership of relevant associations such as EDUTECH, INFOCOM and SCHOMS) and attending conferences; Appropriate resourcing and staffing for effective support and timely upgrades to technological and other components of the support services provided

Stakeholder	Perspective	Needs
CDO and FMO	Reputation for and efficiency in planning/developing/improving/ refurbishing/ maintaining/ cleaning/keeping safe and secure all physical spaces on Campus, supporting PolyU plans and meeting user needs in an efficient, timely and cost-effective manner	<p>Clear understanding on the current learning space provision and current and future needs of students and staff, as well as trends in learning space provision, design guidelines and standards for different elements of campus development and maintenance of learning spaces;</p> <p>Effective, user-friendly routes to receive feedback, suggestions, and complaints and a means to inform relevant stakeholders of these and the remedial actions taken;</p> <p>An effective rolling plan for maintenance, replacement and upgrading of existing facilities (furniture, fittings, décor etc.), remodelling of existing spaces, and creation of new learning spaces (formal and informal, managed and distributed) and new builds based on a) inspection, feedback received and recommendations of WG ILS, and b) forward planning cycle (Figure 1 in Section 5 refers);</p> <p>Efficient and proactive arrangements for inspection, ‘housekeeping’, cleaning and minor repair;</p> <p>Information and examples of best practices and developments in facilities management and campus development in the tertiary education setting (which can be obtained via networking and active membership of professional associations such as TEFMA) and attending conferences;</p> <p>To be part of an integrative platform of learning spaces planning, design, management, support, and oversight within PolyU;</p> <p>Appropriate resourcing and staffing</p>
Architects, External Consultants and Contractors	Professional and reputational in terms of designing and creating new learning spaces and facilities that are fit-for-purpose, meeting PolyU design guidelines and standards and that are well received by PolyU staff and students	<p>A Design Guide/Checklist of overarching principles for the design and creation of new/renovated learning spaces, incorporating, for example, space allocation/student capacity and layout, lighting, furniture type, sound, access, safety, flexibility, AV/IT provision, air circulation/temperature control, comfort and aesthetics and meeting minimum construction, technical, electrical and safety standards (with detailed technical specifications supplied by CDO, FMO, ITS and HSEO as specialists in these fields, and approved by WG ILS);</p> <p>Clearly defined roles and responsibilities and line of communication with WG ILS;</p> <p>Clearly identified single point of contact at PolyU, and close working relationship with WG ILS;</p> <p>Clear understanding of what is needed, and by when.</p>

A Note on Roles and Responsibilities and Project Management

Each learning space ‘project’ involves several parties and units. There must be a single point of contact with an external Consultant (the architect or designer) for the WG ILS and PolyU Project Manager to liaise with. This person must have adequate experience and knowledge to oversee the work and ensure the work is carried out as required and to the specified standards and in a safe way, meeting all University rules and regulations. It must also be clearly understood that the project ‘belongs’ to PolyU, via WG ILS. Each project also has several components apart from design, such as construction work, electrical work, installation of air conditioning and AV/IT equipment, décor, and furnishings. It is important that, in addition to following PolyU guidelines on design-for-function, and meeting technical and safety standards, there should be a clear understanding with external parties in regard to where their roles and responsibilities begin and end. For example, who will select the AV/IT system and tools, or the furniture and fittings?

Therefore, it is recommended that, in general, these items should be directly under the control of WG ILS in order that there can be some standardization of procurement and provision of these types of items, streamlining the process and promoting equity among similar types of new/renovated learning spaces.

Benchmarking, Building on Experience and a Note on Technology

Benchmarking acts as a means to measure how one compares to selected leaders in the field of interest and is a tool to help set aspirational standards and goals and planning strategies to meet stated goals and standards. In terms of learning spaces, there is no single university to benchmark against or use as a ‘model’, and the experience of and examples from several universities and other sources should be examined and used to guide future developments at PolyU. Also, while keeping aspirations high, the unique combination of PolyU’s Vision, the student and staff profile, the existing learning environment and culture, and restrictions of space and resources must be considered in planning its revitalized learning environment, and hence the design principles, guidelines and standards to be set.

Many universities have invested heavily in extensive new builds and large scale modernizing of their learning spaces. Some, such as the University of Technology Sydney and Harvard University have embarked on very ambitious and costly programmes of modernization, new builds, and technology enhancement in recent years. A few

universities, including the University of British Columbia, McGill University, the University of New York, the University of Connecticut, La Trobe University, and the University of Melbourne, have produced detailed guidelines on processes to be followed and standards to be met in the planning, design and creation of new or renovated learning spaces, and these are useful resources to help guide developments at PolyU (see Table 6 in Section 5 for links and further information on these). Many universities have adopted advanced forms of digital learning and associated tools, but it is important to consider appropriate blending of digital and face-to-face teaching approaches, as well as student and staff acceptability of advanced digital tools. They do not suit everyone, and alternative approaches should be available. Also, initial set-up and replacement costs and the built-in obsolescence of some expensive tools are important considerations. For example, the Massachusetts Institute of Technology employed a system of Technology Enhanced Active Learning (TEAL), but student feedback showed that this did not always work well⁴. Also, in some universities whiteboards have been replaced by electronic ‘smartboards’. However, these require user training and IT support, and their high cost is difficult to justify in comparison with that of simple, inexpensive writing surfaces such as whiteboards, back-painted glass panels, flipcharts and ‘huddle boards’. Therefore, while principles, guidelines and examples can be drawn from other universities, they need to be examined carefully for how they meet PolyU’s particular needs and its budget, and the pedagogical value of technology must be clear. It is important that ‘form’ should follow ‘function’.

Therefore, it is recommended that the selection of the form or type of technology and other aspects of the new/renovated learning space is driven by the functional purpose of the space, i.e., the learning and teaching activities to be performed in it and the type of learning experience the students are expected to have in it. This is key point, as a technology-driven design will fail.

At PolyU, space for new builds is lacking, and the current focus at the University is on innovating, remodelling, renovating and retrofitting existing learning spaces. In this regard, Queensland University of Technology is a leader in the field, and was a key contributor to 25-point guide ‘Retrofitting University Learning Spaces’ published by the Australian Learning and Teaching Council, and to which WG ILS is referred (WG ILS has a copy of

⁴ See <https://icampus.mit.edu>

this document). There are also professional and educational associations, such as EDUCAUSE, INFOCOM International⁵, the Association of Education Technology Managers (AETM), and the Tertiary Education Facilities Management Association (TEFMA). These and other associations and organizations offer a wealth of information and experience on learning space planning for WG ILS and PolyU to build upon. A third type of source of useful experience and information is the commercial design sector and learning materials providers. As examples, Steelcase is a world leader in innovative learning space design, and Hermann Miller is a leading designer of learning space furniture (please refer to Table 6 in Section 5 for links).

Student Expectations and Needs Analysis for Future Learning Spaces

A key point in the successful planning and creation of modernized learning spaces is clear delineation of their purpose(s), and the sort of experience that the users are expected to have in these spaces. There is no one model, type or size of learning space that suits all purposes or students or learning and teaching approaches, hence a ‘suite’, or portfolio, of different types of complementary learning spaces and environments in PolyU is needed. In creating this suite of learning spaces, student expectations and satisfaction are crucial considerations. In this regard, the four benchmarks of *Effective Educational Practice* identified by the National Survey for Student Engagement are highly relevant, and must be carefully considered and addressed in the planning and design of learning spaces. Students expect:

- Active and collaborative learning
- Student-teacher interaction
- Enriching educational experiences
- Supportive campus environment.

Also, to aid efficient planning learning spaces that are designed to meet user needs, these needs must be identified and the function of the space decided upon. Only then can its form be designed.

⁵ PolyU is a member of INFOCOM; please refer to Appendix 3 for INFOCOM AV/IT infrastructure guidelines

Therefore, it is recommended that a needs analysis is performed for each space or group of spaces ('precinct) to be created or renovated. This can take the form of a checklist that addresses various questions, as shown in Table 2.

Table 2. Suggested Questions for a Needs Analysis Checklist to Guide Planning of New/Renovated Learning Spaces

- *What specific problems or deficits of the 'old' space are to be rectified or avoided in the new/renovated space?*
- *What pedagogical approaches will the new/renovated space aim to offer that the existing space does not?*
- *What features of the old space should be retained or developed?*
- *What is the size and targeted capacity of the new/renovated space, and how does this relate to targeted space allocation ($m^2/student$) for the type of space to be created?*
- *What technology level is needed – and if above Level I, why?*
- *What kind of environment/ambience/student experience is wanted in the space?*
- *How will the space fit with/add to/complement other spaces in the vicinity (the 'learning precinct')?*
- *Are there special considerations or constraints that will affect the design or renovation work?*
- *Will there be any special training or support needs for the space to be used as envisaged?*
- *What is the expected lifespan of the space?*
- *What is the budget and timeline, and is the budget for the space overall, or per square metre, and does it include AV/IT provision and/or furnishings?*

Budget and timelines are always constrained. However, performing a needs analysis and following clear, accepted and well-communicated planning and design guidelines will focus and streamline the planning, design and execution processes for new/renovated learning spaces and, importantly, will help contain costs.

There are accepted design principles and guidelines for modern learning spaces (see Section 5), but some spaces have special design considerations, or require particular

elements of AV/IT or other provision in order to be fit-for-purpose. Before presenting design guidelines and recommendations, the different types, functional characteristics and purposes of learning spaces that PolyU needs in the coming years will be examined, as these determine their design.

4. Creating a Suite of Revitalized Learning Spaces at PolyU: Functional Characteristics and Purposes of the Different Types of Learning Spaces Needed in the Coming Years

Why are Different Types of Learning Space Needed?

It is recognized that students learn in different ways, that learning is a social enterprise, and that most learning occurs outside the formal classroom. That is not say that formal spaces are not needed, or that the didactic approach to teaching is redundant. When done well, the face-to-face lecture-type approach is still a resource-efficient way of delivering content with context and real life examples, stimulating interest, dealing quickly with areas of confusion and directing independent and group study. Still, for deep and sustained learning, knowledge gained in the formal classroom setting has to be processed, analyzed, integrated, applied and shared. The deepest learning occurs in the teaching of others. Therefore, spaces are needed that enable interaction, inquiry, collaboration and peer tutoring as well as quiet reflection and individual study. In addition, pedagogical innovations and rapid developments in AV/IT are changing how students learn and teachers teach. To meet different and changing needs, a suite of different types of modern, resilient, technology-enabled and complementary learning spaces/environments is needed. This will enable the adoption of a balanced portfolio of digital, blended and face-to-face learning and teaching activities, meeting students' needs and expectations and helping PolyU achieve its goals in relation to continuous improvements in teaching quality and student satisfaction.

What Are the Features of New/Renovated Learning Spaces?

New/renovated learning spaces should be designed to remain fit-for-purpose for years to come. This 'future-proofing' of new learning spaces requires embedding key concepts of mobility, flexibility and resilience in their design to create multi-purpose, easily reconfigured and 'connected' spaces that can be adapted to meet changing educational needs and trends. Learning spaces should be technology-enabled and yet should not be equipped with expensive technologies that are difficult to use or require expensive upgrading/replacement at short intervals of time. In formal managed environments such as lecture theatres and general multi-purpose learning spaces, external distractions should be minimized so as to promote opportunities for deep engagement in learning. Quiet areas,

such as the Library and other less formal managed study zones are needed for self-directed learning and reflection as well as collaborative learning. Informal, open-access, distributed spaces are needed for collaboration, discussion, ideas exchange, planned and spontaneous study, team building, peer mentoring and relaxation between classes. Importantly, learning spaces should be designed to create a welcoming, comfortable, safe, secure, and yet stimulating environment that encourages a sense of well-being, belonging, engagement and purpose.

The design, layout, furnishing and level of AV/IT provision of each type of space depends on how it is to be used, i.e. the type of learning experience the students are intended to have within the space, and the type of learning and teaching approaches to be used. The setting overall can support activities that are tightly structured, teacher directed and formal, or informal, interactive, mainly student-centred, wholly student-led, self-directed, collaborative, reflective or discursive, on-line, off-line, or a combination of these and other approaches. Within the University overall space provision there must be adequate capacity of each type to meet timetabling and directed study requirements. With good design and forward planning, most spaces can be used for various purposes and activities, and this feature is highly desirable from the perspective of future proofing, cost effectiveness and efficiency. ‘Connectivity’ is important in two ways. IT connectivity can create ‘virtual spaces’ in which self- and teacher-directed learning can occur, but in the physical sense, learning ‘precincts’ consisting of lecture theatres, multi-purpose spaces, interactive classrooms and informal learning zones in close proximity to each other will enable learning to transition seamlessly across the various spaces within the precinct.

Learning Spaces at PolyU - the Current Situation and Future Needs

Until recently, PolyU had 210 general classrooms and lecture theatres under the central timetabling system. There are plans to reduce this number to 170 in the near future, with some small classrooms being converted to office space and others being combined to create larger learning spaces. Currently, AV/IT provision at PolyU is good, with effective support from ITS, which has a regular cycle of upgrading and replacement. Some desirable advanced features, such as in-class video capturing of lectures and video conferencing facilities (PolyU ITS Technology Level II and III features; please refer to Appendix 1) are currently lacking at PolyU, and there are plans for these features to be added in selected

learning spaces (as decided by WG ILS) as they are renovated. Some (<20 to date) learning spaces have been modernized in the past 2-3 years, but most of the existing lecture theatres and general classrooms at PolyU retain their original fixed design, which supports the traditional didactic style of teaching but limits the use of innovative pedagogical approaches such as flipped classroom and e-learning approaches that academic staff of PolyU are being actively encouraged to adopt. There are very few rooms that embed the principles of flexibility and mobility. Furthermore, with the exception of those that have been recently renovated, learning spaces lack a welcoming, colourful, comfortable, adaptable atmosphere, and there are very few rooms that by design enable collaborative, interactive learning. Currently, the space allocation per student is generally too low to allow for interaction and mobility. In addition, there is a mismatch between demand and supply of rooms of certain capacities. A survey of learning space demand vs. availability was conducted for the WG DCFELT by AS in 2015, using Semester 1 and 2 usage and demand data for 2013 and 2014. In regard to daytime use (08.30-18.30 Mon-Fri) the survey revealed:

- Undersupply (by ~50%) of rooms of capacity <30
- Oversupply (~3 to 4-fold) of rooms of capacity 30-50
- Oversupply (~4 fold) of rooms of capacity 51-65
- Oversupply (2 to 3-fold) of rooms of capacity 66-80
- Undersupply (~50%) of rooms of capacity 81-100
- Oversupply (by ~2-fold) of rooms of capacity 101-130 and rooms of capacity 131-198
- Oversupply (by ~5-10 fold) in rooms with capacity 200 and above

Given these findings, and assuming supply and demand have not markedly changed, the following comments and recommendations are made:

- The undersupply of small rooms is not an issue of concern. Smaller groups (<40) can be accommodated in larger rooms (capacity 40-80) of which there is plentiful supply. Indeed, as small rooms have limited space for adaptability and interaction, smaller groups are better accommodated in larger, more flexible spaces. ***Therefore, it is recommended that no additional small (capacity <40) 'formal' learning spaces rooms should be created, and that where possible the existing rooms of capacity <40 should***

be combined to create larger spaces with more space allocated per student and to meet demand where this currently exceeds supply. Furthermore, it is recommended that in creating these larger spaces, the design, furniture, features and layout should enable interaction, flow (movement), connectivity and flexibility to create a range of multi-purpose, adaptable rooms.

- The evidence of oversupply of rooms of capacity >100 (and especially those of capacity 200+), taken along with the desired pedagogical changes that emphasize movement, flexibility and repurposing of space, leads to *the recommendation that these spaces should be remodelled and/or refurnished to create multi-purpose rooms of lower nominal capacity (by 30-40%) and greater flexibility.*
- The problem of undersupply of rooms of capacity 81-100 can be solved by the combination of smaller rooms and the remodelling of the excess numbers of larger rooms. It is noted here that smaller groups can always use above-capacity rooms, but very few of the existing larger capacity rooms have design features or furniture that facilitate flexibility, flow, interaction and repurposing. This limits the adoption of interactive and innovative learning and teaching activities. Therefore, *it is recommended that older lecture theatres of outdated design (such as HJ and FJ 3rd floor rooms) and capacity 100+ are regarded as priority spaces for remodelling to create the spaces of capacity, type and flexibility that are currently lacking.*

A Note on AV/IT Provision and ‘Distributed’ Learning Spaces

In all formal, or ‘managed’⁶ learning spaces there is a basic acceptable level of AV/IT provision that meets agreed (by the WG) minimum standards. At PolyU, this is ‘Level I’ AV/IT provision. More advanced AV/IT provision (Level II and Level III) is needed in some learning spaces. It is the current ITS policy to re-examine and update the basic ‘Level I’ provision in a 1-2 year cycle in order to plan upgrades in a dynamic and forward thinking manner. In some managed learning spaces, AV/IT provision is planned to be enhanced to a higher level, featuring, for example, conference call facilities. Multiple-source projection

⁶ The term ‘managed’ learning space is used here to denote spaces on Campus that provide a controlled or managed learning environment in relation to the activities taking place in these spaces. These spaces include lecture theatres, general classrooms, interactive rooms, the Student Computer Centre and Library.

screens are to be installed in most if not all ‘formal’ learning spaces. Level III technology-enhanced spaces will be mainly, but not exclusively, the large lectures theatres, and some smaller rooms will need special AV/IT elements to promote connectively and collaboration.

Other managed spaces require less in the way of advanced technology, but do need some special features or Level II elements, such as the MoCoWs in AV/IT-enhanced learning stations/pods for small groups. Yet other spaces, such as learning cafés, hot desks, open access areas (of which there are very few currently) require no special facilities to be provided, needing only the existing PolyU-wide WiFi service and installation of electrical power sources to enable students to use/recharge their own mobile devices. If possible cleanable writing surfaces such as tempered glass panels or painted surfaces should be installed in these ‘unmanaged’⁷ learning spaces, which will be scattered (‘distributed’) around Campus but which should be in close proximity to formal spaces, linking formal, teacher-directed learning seamlessly to independent study and collaborative learning activities. Distributed spaces can be created in currently unused or underused spaces, for example, in corridor niches, open access ‘no door’ rooms, lift lobbies and in sheltered, temperature-controlled areas outside. These spaces will provide areas for students to study alone or in small groups, search for information on their own devices, and relax and socialize with their peers between and after classes, encouraging them to remain on Campus and increasing their sense of belonging. They will also relieve pressure on formal managed spaces by providing out-of-the classroom study zones. It is worth noting that this type of informal space is very common in universities overseas. Some are equipped with ‘mini-kitchens (a sink, microwave, rubbish bins and vending machines for drinks and snack foods), creating popular meeting points for students to relax in and refresh themselves, as well as for study in groups or alone. ***Therefore, it is recommended that an active search for suitable areas for the creation of such informal, distributed spaces be carried out at the earliest opportunity, and that students should be involved in the identification, design and creation of distributed spaces.***

⁷ The term ‘unmanaged’ is used here to denote areas on Campus that are not controlled by central booking service, and in which students’ activities are not directly managed or overseen by PolyU staff; nonetheless, the spaces will be looked after in the normal way by the Facilities Management Office in regard to lighting, cleanliness, security, etc.

Different Types of Learning Spaces Needed, Their Functional Characteristics and Purpose

As noted, PolyU's suite of revitalized learning spaces should contain various types of space of different capacities and design/layout so as to meet various purposes and provide different but complementary types of learning environment within learning precincts. The traditional names of 'lecture theatres' and 'classrooms' influences perceptions of how these rooms should be used, often limiting activities to the didactic teacher-led approach that PolyU aims to use less of. Therefore, it is useful here to allude to the metaphoric terms used by Apple to describe different learning environments/spaces, and described in the Australian Learning and Teaching Council 2011 Final Report on Spaces for Knowledge Generation. These metaphoric terms are 'Mountaintop', 'Campfire', 'Wateringhole' and 'Cave'.

'The Mountaintop' – this is a space where the lecturer addresses a large (typically 150+) audience, usually from a fixed position at the front of the space and at some distance (on a stage or behind a lectern/teacher station) from the audience. This type of space is found in the traditional large lecture theatre or auditorium. Typical features include a tiered floor, fixed seats, often with tablet desks, arranged in long straight or curved rows. There is very limited mobility or flexibility, and lines of sight are often obstructed. Learning and teaching activities in this type of space are mainly/exclusively lecturer directed, with largely one-way communication, although effective use of enhanced AV/IT tools can introduce elements of audience/student engagement and interaction. Design and layout features can also enable the lecturer to move around in the space, further engaging students. Though used less often nowadays, there is still a need for some 'Mountaintop' spaces in the modern university, as they enable delivery of content and context to large classes (still a time and resource effective way of doing this when done well). These spaces are also used for Plenary and Keynote conference talks, for talks by guest speakers of note, public talks, award ceremonies and other special events. The space can also be used (though rarely) for student presentations and conferences. PolyU currently has adequate provision of 'Mountaintop' spaces, though in some cases the fixed design/layout severely limits mobility and interaction, and *it is recommended that this be addressed in due course, with more interactive layout and features, supported by technology enhancement.*

The ‘*Campfire*’ – a space where classes of around 80-150 students listen to the teacher, but can directly interact with the teacher and each other, and share knowledge and experiences; learning and teaching activities can be formal and didactic, as in large lecture theatres, but can move to the less formal and more collaborative, student-centred type of activity when facilitated by layout, appropriate AV/IT tools, clear sight lines, and flexible/adaptable furniture. This type of multi-purpose space can also be used for seminars, invited talks by external speakers, workshops, conference parallel sessions, and student presentations and exhibitions. At PolyU many general classrooms and smaller lecture theatres await transformation into this type of space, and others can be created by combining smaller classrooms.

The ‘*Wateringhole*’ – a space where smaller numbers of students (up to ~80) can gather in a less formal but stimulating atmosphere for collaborative information gathering, processing, synthesis and experience sharing. This type of space should be furnished to maximize adaptability of layout, flexibility of function, mobility, interactive and collaborative activities. The learning and teaching activities employed in this type of space are usually teacher-directed and can be didactic, but this type of space is ideal for student-led and interactive activities used in, for example, the flipped classroom, group information gathering, case study, open discussion and mini-project work, presentations, and for planning and revision. This type of space could be used also by students from different classes in informal, technology-enabled collaborative study (such as the MoCoW-equipped Zone), and for training workshops for staff in innovative pedagogical approaches and sharing sessions, for smaller seminars and parallel or breakout conference sessions. At PolyU, a few spaces of this type have been created in the past few years, and many of the traditional style classrooms could be transformed easily by means of using accepted design principles and guidelines (see Section 5) to promote flexibility, mobility and interaction in their renovation. Some of these spaces can be connected by means of fold-back soundproofed glass walls to create larger, highly flexible, multi-purpose spaces as needed for workshops, receptions, exhibitions and examinations.

The ‘*Cave*’ – this type of space enables private study and reflection by one student or a small group of students. At PolyU, currently there are very few spaces of this type, and there is a need to identify suitable areas to create more of these learning space across

Campus. This type of distributed learning space can be created in lift lobbies, corridor ends, small spaces/rooms that can be opened up, under staircases, in corners and in some open air areas. Most of these spaces require merely (in addition to appropriate shelter in open areas and security), adequate lighting, electrical power sockets, simple (but comfortable and durable) furnishings, and some design/visual features). No AV/IT devices need to be installed unless the space is designed as a technology-enabled area, for example, in a MoCoW-enabled collaborative learning zone. In most ‘Cave’ spaces, students use their own mobile devices. Importantly, students can be involved in finding and designing these distributed spaces so that they are created with student acceptability and usage to the forefront in the planning process. Some ‘caves’ should offer quiet zones with limited distractions, and so should be managed and bookable, such as Library and MoCoW study zones, while others can be freely accessed, offering an open, relaxed and collaborative atmosphere, such as learning cafés, hot desks, corridor niches and ‘no door’ group study zones.

The main purpose of each type of learning space should be obvious to users from the appearance of the room and its furnishings. However, good design, embedding the principles of flexibility, mobility and connectivity, and promotion of its features enables each type of learning space to support different approaches to learning and teaching activities, creating multi-purpose, adaptable spaces in which different and complementary learning environments can be created.

Summary and Looking to the Future

PolyU’s vision for the future of learning and teaching is one of innovative, technology-enabled, student-centred approaches that promote collaborative, active and sustained learning within a modern, welcoming community of learning. Currently, learning spaces at PolyU are generally inadequate in terms of spatial provision per seat/student, and are disappointing in respect to layout, colour schemes and furnishings. Furniture is largely fixed, inhibiting the adoption of approaches that engage students and support the mix of face-to-face, blended, and technology-enabled modes of teaching. There is a mismatch between supply and demand for spaces of certain sizes. AV/IT provision is good, but some special provisions are lacking, such as lecture capture and video-conferencing facilities. Informal, and distributed learning spaces are very limited, and PolyU has yet to create

‘learning precincts’ of different types of learning spaces in close proximity to each other, yet these are needed to enable a seamless transition between in-class and outside class, on-line and off-line, collaborative and individual learning. The very few managed learning spaces that are designed to promote student interaction and informal spaces are isolated, most students and staff do not know about them or how they can be used, and there is a lack of digital signage and an easily accessible and informative room booking system. There is also the issue of needs analysis, clearly defined roles and responsibilities of all the parties involved in the planning, design, creation, renovation, management and oversight of learning spaces, and a clear decision-making process, especially when external consultants (architects, designers, contractors) are involved. *All these issues need to be addressed in modernizing of the learning spaces at PolyU.* Also, and as noted earlier, WG ILS is well placed to drive and oversee the overall process of learning space modernization, but a full-time Co-ordinator of Learning Spaces and Support is needed to spearhead and support the work of the WG ILS and monitor and co-ordinate follow-through actions and feedback on its decisions and plans.

5. Recommendations for Guiding Principles and Standards for the Design, Creation, Oversight and Management of New/Renovated Learning Spaces

Accepted principles of modern learning space design address issues of comfort, aesthetics, accessibility, flow/movement, equity, blending (mixing face-to-face and virtual approaches to learning and teaching), and repurposing (providing flexibility, adaptability and resilience). The non-physical ‘virtual’ spaces enabled by AV/IT tools must be easily accessible, ubiquitous, familiar across spaces, user-friendly and acceptable in order to be used effectively by staff and students for content delivery, for analysis, integration, synthesis and application of knowledge, and for student-student and student-staff interaction. There must also be effective mechanisms for their promotion, management, use and evaluation.

Agreed principles for the design, creation and management of new/renovated learning spaces cover three dimensions:

1. Pedagogy, which relates to the learning and teaching approaches to be used. It is noted that more interactive, collaborative learning and teaching modes are actively encouraged at PolyU, with less direct face-to-face interaction and greater use of blended learning, e-learning and flipped classroom approaches, aided by video capture and on-line content⁸, as well as more informal distributed learning spaces for students to study and collaborate. The pedagogical aspect should always be the primary concern in the design and fitting out of a learning space, with form following function. In other words, the functional needs of a learning space drive the planning of its design and the selection of its AV/IT provision.

⁸ *It is important to note that in planning formal, managed learning spaces that promote interaction and collaboration, more space is required per student. For example, in a traditional lecture theatre/auditorium with fixed seating and tablet chairs the usual space allocation is ~1.0 m²/student. This increases to ~1.6-2.0 m²/student when some interactive design features are embedded and to 2.5-2.8 m²/student when the space is designed for flexibility, interaction and collaboration.*

2. *Technology*, which relates to AV/IT tools/facilities. ITS policy is to have basic ‘Level I’ AV/IT provision in all formal/managed learning spaces, with provision enhanced to Level II or III in selected spaces that need enhancement (overall or in the form of special AV/IT tools) for their stated purpose(s). There is also a goal to create a seamless on-line/offline technology platform that supports the creation of virtual spaces enabled by students’ own mobile devices. To create these, recharging outlets for student to use for their devices are needed throughout Campus, as are some technology-enhanced learning hubs/pods such as the MoCoW multi-media collaborative learning stations.

3. *Space*, which relates to the mainly physical space in which learning and teaching occur. Design and features must match the pedagogical purpose(s) of the space, and should create a welcoming, comfortable, safe environment in which learning can occur and be sustained. Spaces that have different purposes should not have an identical look or ambiance. In particular, learning spaces should not be bland, featureless rooms lacking any visual interest. Some spaces should stimulate and inspire creativity and interaction, while others should be more peaceful, encouraging deep thought and reflection. Different atmospheres are created easily by the use of visual elements and colour. Red, orange and yellow stimulate and energize, while green and blue have a calming effect. Adding visual elements such as posters, photographs, abstract patterns and inspirational quotations is a very cost-effective way of adding visual interest and generating a sense of well-being and purpose.

In the following pages, information on and recommendations for design tips, guiding principles and standards for learning spaces are presented. These include generic guidelines, points of common sense (but which are sometimes forgotten) and overarching principles of design that can be applied to all formal learning spaces. There are also notes, recommendations and sources of further information on standards/specifications for AV/IT, electrical, mechanical and construction components and finishes of new/renovated spaces, and on maintenance, management, oversight and procurement processes in relation to learning spaces/environments. Together, these can be used to guide the various parties involved in the planning, design, creation, management and oversight of new/renovated learning spaces, helping to control and integrate the processes, and ensuring that new/renovated spaces are fit-for-purpose, meet stakeholders’ needs, are acceptable to end-

users – and that they remain that way in the coming years despite rapid changes in the educational environment.

In Table 3, design tips for learning spaces across the three dimensions described above are presented.

In Table 4, 100 guiding principles and recommendations for the planning, design, creation, management and oversight of new/renovated learning spaces are presented.

In Table 5, supporting information for space allocation/student recommendations is presented.

In Table 6, useful information sources for further reading and guidance on technical specifications/standards are presented.

It is recommended that WG ILS use the information in these Tables, along with the supporting information provided in the earlier sections of this Report, to construct a ‘process, principles and action’ guide for learning space planning and design, and that each specialized operational unit create a checklist of detailed technical specifications/minimum standards for construction, service installation and fitting out elements of new/renovated learning spaces in relation to their areas of expertise and operation. These checklists and standards should be discussed by WG ILS, refined, endorsed and consolidated into a ‘University Guide for Learning Space Design, Standards and Processes for Construction, Infrastructure and Management’. This can then be submitted to PEC for further endorsement and implementation.

Please refer to Table 6 and Appendices 2 and 3 for further information and sources to guide the operational units and WG ILS in this.

A Note on Standards/Specifications for AV/IT, electrical, mechanical and construction components and finishes of new/renovated spaces

All ‘formal’ learning spaces have three components, namely:

- The construction and building services (electrical systems, ventilation, acoustics and noise control, lighting)
- The AV/IT provision
- The interior design and layout, fixtures and fittings (furniture, lectern, flooring, window blinds and finishes)

Each ‘project’ to renovate or create a learning space has to meet functional and safety requirements across all three components. Technical standards and specifications may vary with the type of space, and these changes also in line with technical advances and amendments to local or international safety rules, building regulations and environmental considerations. Still, all elements within each component must meet agreed minimum standards of safety, quality, function and performance. The responsibility for setting technical specifications/standards for the various elements within the three components (such as electrical and other cabling, air circulation, sound levels and reverberation times, location and number of doors, ceiling height, lighting levels and lamp types, voice amplification and assisted listening systems, motion sensors, projector resolution, screen sizes, AV/IT device integration, among others) lies with the specialized operational units in PolyU (ITS, CDO, FMO, HSEO). As noted above, these technical specifications/standards should be endorsed by WG ILS, consolidated into a University Guide for Learning Space Design, Standards and Processes for Construction, Infrastructure and Management endorsed by PEC and implemented. Thereafter, for every project consultant and contractor, all of whom must be experienced and qualified in the work to be done, can be given a clear and detailed brief for the learning space to be created or renovated.

A Note on External Consultants - Roles and Responsibilities

In regard to external consultants and contractors, there must be a single point of contact for the WG ILS and PolyU Project Manager to liaise with external parties, and this person must have adequate experience and knowledge to oversee the work and ensure the work is carried out as required and to the agreed design guidelines and standards, in a safe way, and meeting all University rules, regulations and processes. The roles and responsibilities of external parties must be clear and agreed. The design and all components for which the external consultant is responsible must be agreed by WG ILS, in consultation with the

specialized operational units, before work begins. If the plan of the external architect or contractor deviates from the agreed standards or design guidelines then WG ILS must be informed and approve (or reject) the revised items of the plan before the work is done. In signing off the work, the checklists mentioned above should be used to evaluate the different elements and components of the work in regard as to meeting the requirement and standards before the final payment is made.

Technical Specifications/Standards

As noted above, decisions on detailed technical specifications/standards rightly lie with the specialized operational units in PolyU, for it is there that the relevant professional and technical expertise and experience are to be found. Still, to guide the WG ILS and support units directly involved in creating/fitting out learning spaces, various useful sources of information on design principles and standards for these components are listed in Table 6.

Some of the sources given provide detailed descriptions and specific standards for, among others, AV/IT infrastructure, cabling, lines of sight, screen sizes, lecterns, ventilation, storage, lighting, accessibility, safety, ceiling heights, step rises, facilities management and learning support services. As an example, of the type of detailed information that is available to guide Campus development, La Trobe University has published a design standards guide of >200 pages, and this can be found at (http://www.latrobe.edu.au/_data/assets/pdf_file/0006/623445/S003-Design-Standards.pdf).

Also, there is a 158 page document from INFOCOM International® on guidelines for designing and implementing AV/IT technologies in higher education learning spaces (https://www.infocomm.org/cps/rde/xbcr/infocomm/InfoComm_AVITHighEd_Dec14.pdf). This document is given in Appendix 3 (note: PolyU is a member of this organization, and as such is entitled to access and use these guidelines).

Other than INFOCOM guidelines, detailed guides are not reproduced here due to copyright considerations, but can be accessed by WG ILS members via the websites given in Table 6. Some of the sources listed in Table 6 are overseas universities that have extensive and recent experience in upgrades and renovations to their learning space provision. *It is recommended that WG LIS forms links with some of these universities to learn directly from their experience.* Other sources of information, such as AETM, EDUCAUSE, JISC

and SCHOMS, are professional associations or organizations that, in addition to producing detailed guidelines on learning space design and management, publish newsletters on innovations in learning space design, and also organize international conferences on learning spaces, pedagogical innovations, AV/IT provision and learning support services. *It is recommended that PolyU takes up membership of some of these associations to benefit from their activities, publications and networking opportunities.*

A third source of information is offered by commercial designers and suppliers of furniture (such as Steelcase and Herman Miller) whose brochures and websites offer a wealth of ideas on innovative learning spaces, as well as design services, *and is recommended that WG ILS explore their materials and consider using their design services and products.*

A Note on Procurement

The purchase of different elements (such as furniture or equipment) within a specific project is subject to a procurement process that generally requires tendering for each element. If the process is followed for every project then sub-optimal, non-standard types of furniture and equipment from different suppliers will result, with selection directed largely by the architect's preference and selection decisions ultimately based mainly on cost, even when the 'project' is to create a similar learning space with similar furniture and equipment requirements to those of an earlier project. This repeated tendering processes leads to delays, lack of continuity and to inequity across the same types of learning space. Therefore, it is recommended that there should be a 'category-type' of tendering process in which each category of furniture and equipment is tendered for by PolyU (not via external architects). From this, a selection of suitable suppliers and items that meet the requirements of different types of learning spaces (not different 'projects') can be chosen, and items can be procured without further tendering unless needs change. In other words, if a particular type of furniture or equipment has been trialled, found to be acceptable, and selected as 'standard' provision for a certain type of learning space, then this should be able to be purchased for other spaces of the same type without further tendering exercises in a 'new' project unless there is a good reason to change the standard provision, for example due to development/release of as new items or when minimum standard changes). *Therefore, it is recommended that a 'category' type of tendering process is devised and used to facilitate procurement.*

Table 3. Design Tips for New Learning Spaces

(from <https://www.steelcase.com/spaces-inspiration/active-learning-spaces-classrooms/>)

PEDAGOGY

- Design to support fluid transitions among multiple teaching modes: lecture, team project, discussion, etc.
- Design for peer-to-peer learning.
- Allow freedom of movement for the instructor, enabling frequent interactions and ongoing assessment.
- Support the implementation of professional development to increase adoption of new teaching strategies.
- Set expectations for what an active learning environment looks like— learning is messy, things move.
- Expose students to how these environments enable, support and allow them to take ownership of their learning.
- Support individual learning.

TECHNOLOGY

- Design for sharing, leveraging both vertical and horizontal surfaces for display; use projection and interactive surfaces.
- Integrate, use and allow access to BYOD and instructional technology tools and devices.
- Allow for displayed information to be persistent over time.
- Ensure thoughtful planning occurs when selecting technology so the tools are used as intended to enhance outcomes.
- Be intentional about what technologies should be used and how to support pedagogical strategies.
- Incorporate tools that support synchronous and asynchronous learning and collaboration.
- Support learning styles with both analog and digital means to co-create.

SPACE

- Design for visual and physical access, giving every student the best seat in the house and allowing the instructor and student access to each other.
- Facilitate social learning by designing spaces where students can easily connect and collaborate.
- Design to support quick reconfiguration among multiple modes: from lecture to project work, discussion, test taking and back again.
- Include wall protection for table and chair movement.
- Support a range of postures to enhance wellbeing.
- Integrate the design to support and reflect the educational goals and mission of the institution.

Table 4. 100 Guiding Principles and Recommendations for Planning, Design, Creation, Management and Oversight of New/Renovated Learning Spaces ⁹

The Physical Space and its Structural and Fixed Components – Planning, Design, Standards, and Processes

1. All internationally accepted and locally enforced safety regulations must be met in regard to structural, electrical, mechanical features and equipment, air quality/temperature/environmental control, energy efficiency, public safety, fire safety, electrical safety, security, and access for the mobility impaired
2. Spaces should be of regular, square or near-square shape; long-sided rooms should be avoided; very low ceilings should be avoided
3. Form follows function: at the forefront of function is the pedagogical purpose of the space, and it is this that guides the design
4. Spaces should be designed to be adaptable, multi-purpose, ‘future-proofed’, and support the use of various learning and teaching approaches and activities
5. Spaces should be designed with simplicity, ease of maintenance, sustainability and be user-focused
6. A key component to achieving active and collaborative learning and teaching approaches is providing adequate floor space per student; spaces should have nominal capacities that avoid overcrowding and allow for interaction, mobility and comfort; the more interaction the space is designed for, the more space that is needed per student
7. For major lecture theatres with fixed seating, ideally there should be at least 1.5 m²/student; for more interactive-style double-tiered lecture theatres with moveable/rotating seats, at least 1.8 m²/student; for spaces designed for interactive and collaborative learning at least 2.5 m²/student should be allowed (see Table 5 for information on space allocation at other universities that have been used to guide these recommendations)
8. Formal learning spaces should not contain structural columns, bends or other hindrances to students’ view of projector screens and the teacher, or block the teacher’s view of students

⁹ *The design of very large lecture theatres and some existing spaces may not be able to address all points*

9. Doors into learning spaces should have a glass panel (or doors should be made of glass of suitable strength and sound proofing) so that visitors/potential users can see into the room without entering
10. Glass doors and walls are to be encouraged to open up spaces and allow natural light to spill over into corridors
11. There should be adequate and easily adjustable lighting and temperature/ventilation systems, distractions and noise from outside the room should be controlled by structural features such as soundproof doors and windows
12. Noise from machinery such as air conditioners should be controlled and meet agreed minimum standards; as an example in the AETM Design Guidelines for Tertiary Teaching Spaces, 2nd Edition, permissible noise levels for formal learning spaces described by the Australian Standard AS 2107-200 give a minimum standard of ambient noise level of 35-45 dB(A), depending on the type of space
13. Lighting should be easily and flexibly adjustable for different areas within the space, with dimmer controls and easily understood lighting panels. The *Lighting Guide 5: Lighting for Education* is a reference for lighting design that covers not only lecture theatres, but also all teaching spaces and rooms specific to educational premises across schools and further education, and extends to committee rooms, conference and multipurpose rooms¹⁰
14. Lights for whiteboards should provide adequate light for legibility at all angles, and without glare and reflection that obscures or obstructs legibility; board lighting should be on a separate circuit, and not ‘spill’ onto the projection area; as an example of specifications in the AETM Design Guidelines for Tertiary Teaching Spaces, 2nd Edition board lighting is recommended to be “300 lux on the vertical plane of the board surface”
15. There should be ease of access to, movement within and exit from every learning space, avoiding an overly steep, potentially hazardous incline, high steps or long uninterrupted rows of seating
16. Formal learning space layout should be arranged to facilitate clear lines of sight between teacher/students and students/teacher; where there are blind spots due to

¹⁰ *The Society of Light and Lighting (SLL) (2011) SLL lighting guide 5: Lighting for education. ISBN 978 1 906846 17 6, London: CIBSE.*

- obstructions that cannot be removed or rectified, additional monitors or screens of appropriate size, resolution and number should be installed
17. A tiered or sloping floor is generally needed in spaces of capacity >80, otherwise use flat floor
 18. In tiered floor rooms, steps in aisles should be of the same size and rise, edged in a contrasting colour or material to the rest of the step, and be under-lit or lit from the edge of the aisle; these recommendations are the same for smaller lecture theatres where double-row tiers of seating are used
 19. Some flat-floor learning spaces, as far as practical, should be connectable by means of soundproofed, double glazed glass panels or other new technology (e.g., Skyfold) that can open to form larger ‘multi-purpose’ spaces for workshops, exhibitions and provide reception areas, as well as for use for examinations
 20. There should be provision of a suitable, ‘standard’ (familiar, but not necessarily identical) lectern/teacher station that houses AV/IT equipment across all formal learning spaces
 21. The lectern should not dominate the room or hide the teacher, should be modern and streamlined in design, and house an easily used control panel for sound, lighting and AV/IT equipment; if possible the lectern or part of it should be able to swing round by 90°C to create extra open space when needed; use of no part of this station should require the teacher to turn his/her back to the audience
 22. The lectern/station should provide adequate space and electrical power for teacher’s own device(s) and notes
 23. Small mobile ‘accessory’ items, e.g. laser pointer, spare batteries, rechargeable wireless and/or lapel microphones, writing materials, should be easily accessed from the lectern by smart card access to clearly labelled compartments in the teacher station
 24. There should be a ‘performance area’ near to the teacher station/lectern; unless there is good reason to have a stage, the performance area should be on the same level or just slightly sloped above the front row of seats
 25. The performance area should be well (but adjustably) spotlighted on a separate circuit, and not directly in front of a projector screen
 26. The projector beam should not hit the teacher’s eyes when he/she is in the performance area or at the teacher station

27. When in this area the teacher should be visible to all students (if not, additional monitors that show this area must be installed as appropriate to avoid blind spots)
28. A camera should be installed to ‘track’ the teacher so his/her image is always visible on a screen as s/he moves around the space (also facilitating video capture of lectures)
29. Appropriate resourcing is needed to support agreed upgrade and replacement cycles
30. In regard to external consultant (architects, designers) there must be a single point of contact for the WG ILS and PolyU Project Manager to liaise with. This person must have adequate experience and knowledge to oversee the work and ensure the work is carried out as required and to the specified standards and in a safe way, meeting all University rules and regulations
31. WG ILS, via its members from the specialized operational units, should supply the external consultants with a checklist of requirements for the job in hand, and the roles and responsibilities of all parties involved in each project must be clearly defined and agreed
32. The checklist for each project/project component will be drawn from the University Guide for Learning Space Design, Standards and Processes for Construction, Infrastructure and Management¹¹
33. There should be a clear understanding with external parties in regard to where their roles and responsibilities begin and end, e.g. who will select the AV/IT system and tools, or the furniture and fittings¹²
34. Detailed planning and design guidelines and technical standards on design, construction and fitting out of physical learning spaces have been prepared by several associations and overseas universities, including SCHOMS, University of Technology Sydney, University of Connecticut, University of British Columbia, University of Melbourne (see Table 6 for links); WG ILS is referred to these sources for further information

¹¹ As noted on page 30 it is recommended that WG ILS and operational units of FMO, CDO, ITS, use the information in this report to create a consolidated University Guide for Learning Space Design, Standards and Processes for Construction, Infrastructure and Management for PEC for endorsement and implementation.

¹² As noted on page 14 is recommended that these items should in general be purchased directly by/via WG ILS in order that there can be some standardization of procurement and provision of these types of items, streamlining the process and promoting equity among similar types of new/renovated learning spaces.

AV/IT Provision

35. Provision of AV/IT equipment and tools (whether at PolyU ITS Level I, II, or III as appropriate for the purpose and fit-out of the space) should be consistent, familiar, user-friendly, clearly labelled, and with clear user guide (in booklet and video formats)
36. There should be with some form of easily used helpline to ITS support available at all times that space can be booked for use
37. AV/IT equipment should be secured
38. The AV/IT system control panel should be the same in all spaces and be intuitive and simple to use
39. AV/IT provision should be upgraded in regular cycles, with appropriate resourcing
40. Frequent and unnecessary changes to user interface should be avoided; new technologies should be trialled for effectiveness, suitability and acceptability before large scale adoption
41. Spaces, of both formal and informal types, should be designed to support the use of personal mobile devices, with sufficient recharging points for mobile devices
42. Electrical power sockets for students' mobile devices should be many and ubiquitous; as a guideline in formal spaces, one double electrical socket/10-12 students is recommended; avoid floor-based sockets unless these have a strong cover and fitted flush with the floor, but to avoid breakages and trip hazards, sockets should be placed into skirting panels or in table trunking; in some spaces electrical sockets can be placed within easy reach on walls or columns
43. Projectors, monitors, screens sizes and resolution defined as part of the PolyU ITS AV/IT equipment categories should meet international standards, follow best practice, and match the requirements of the size, shape and purpose of the room¹³; as an example of specifications in the AETM Design Guidelines for Tertiary Teaching Spaces, 2nd Edition, "the height of the projection screen or flat panel display shall be no less than the distance between the centre of the screen to furthest audience member divided by 5.3" (this rule impacts on ceiling height requirements, which range from

¹³ There are detailed guidelines available for these elements/features from professional associations that can inform the decisions on technical standards/specifications of PolyU support units (FMO, CDO, ITS) and WG ILS (Table 6 and Appendices 2 and 3 refer)

- 2.7-4.0 metres when the distance to the last audience member changes from <7.5-14.4 metres)
44. There should be a minimum of two ‘independent’ projection screens (one for PC or video, one for the high resolution visualizer) of appropriate size for the space; projectors should be of the ‘short throw’ type to avoid the projector beam shining on the teacher (unless there is good reason not to choose this type, such as in a high ceilinged space); the layout design of the projector screens and monitors should also consider the lighting factors to minimize reflection
 45. Some selected areas should have three independent projection screens to enable, for example, video conferencing
 46. A common high resolution, easily used visualizer should be a standard provision in all ‘formal’ spaces
 47. There should be an easily cleaned or replaceable writable surface fixed directly underneath for ease of projecting teachers writing (this can be simply acetate sheets or sheets of white paper)
 48. All AV/IT tools, control mechanisms, interfaces, plugins, installation work etc. must be tested and found to be acceptable (meeting agreed standards) on the checklist before the work is signed off as meeting job requirements
 49. Appropriate resourcing is needed to support agreed upgrade and replacement cycles
 50. No space should be over-reliant on current technology that cannot be easily used, upgraded or replaced; in other words, do not build spaces to fit technology, and keep pedagogical purpose to the fore in planning the form of AV/IT to be provided
 51. Detailed guidelines and technical standards on AV/IT infrastructure for Higher Education are available for INFOCOM International (see Appendix 3), AETM and other sources (see Table 6 for links); WG ILS is referred to these sources for further information

Furnishings, décor, comfort, and ambience

52. Spaces should be easily maintained, with attention to purpose, sustainability, safety, and environmental issues
53. Procurement processes for furniture and equipment should be ‘category-based’ not ‘project based’ to facilitate purchase of ‘standardized’ items

54. Spaces should feature design elements of matching or pleasantly contrasting colours as well as aesthetic interest (art features, quotations, etc.) to help create a welcoming, engaging learning environment
55. Multiple writing surfaces should feature in every learning space: these should be easily accessed, non-reflective and sturdy
56. Fixed writing surfaces can be the typical wall-mounted whiteboard, or can be wall-mounted back-painted (of various high contrast colours to add visual interest) low-reflective glass
57. Where adequate wall space is lacking, flipcharts or 'huddle boards' can be installed; doors and columns offer additional potential writing surfaces
58. Writing surfaces do not need to extend above 6 feet in height; avoid angling writing board backwards as this causes problems with light reflection; if possible angle reflective writing surfaces slightly forwards
59. Electronic smart boards are not recommended as these introduce unnecessary cost, complexity and training needs, and become obsolete quickly
60. The type and layout of tables and chairs should be appropriate for the size, nominal capacity and purpose(s) of the space
61. Custom built furniture should be avoided due to high cost, and difficulty in finding replacements for damaged items
62. Samples of new types of furniture should be displayed/piloted for user acceptability before large scale procurement
63. Tables and chairs in flat floor rooms (capacity up to ~80) should be light and easily moved to enable the room to be reconfigured easily and promote multi-purpose use
64. Diagrams of different possible configurations for each space should be displayed in the room to guide teachers in their different uses/layouts
65. Chairs should be comfortable and robust and have extended (7 years or more) structural warranty
66. Avoid 'bulky' or heavy chairs if these are to be moved, and avoid wheels on light, easily moveable chairs unless in a carpeted area; wheels, if required, should not be detachable but permanently fixed to chairs
67. Avoid tablet-table seats except for in a) major lecture theatres with fixed seating and b) interactive, collaborative managed furnished with 'nodal' tablet chairs (see Figure 2)

68. Fixed seats in major lecture theatres should be numbered clearly by and have seats that flip up to allow access and movement along rows, and rows should not be too long
69. To prevent staining and to enable ease of cleaning of chair covers, fabric should be avoided – use vinyl or mesh; where fabric covers are used these should be mid-range-to-dark in colour; patterns are preferred to plain single-block colour on fabric
70. In flat floor spaces, chairs should be light and moveable and generally do not need wheels
71. To enhance adaptability of spaces, chairs should be easily stackable and table tops should ‘flip’ (see Figure 2)
72. Tables should be of adequate size to hold student’s notes and one mobile device (tablet size); sharp corners should be avoided; tables should be light and moveable, and able to be configured in different ways (rows, squares, ‘islands’) to meet different teaching approaches; avoid ‘modesty panels’ as these impede leg movement; tables legs are best recessed under the tabletop
73. There should be easily accessible storage spaces inside or near to each formal space to keep additional/temporarily excess numbers of chairs and tables
74. Good quality, easily found, standard colours of paint and plaster finishes should be used to promote economy and facilitate small repair/touch-up maintenance work; painted walls should have a metal or plastic ‘bump barrier’ to buffer against damage from chair backs; this can be designed easily and inexpensively to add an additional point of visual interest
75. Floor coverings and window blinds should be durable and easily cleaned, repaired and replaced in part or whole
76. For floor coverings, non-slip vinyl is preferred; if carpet is decided on for special acoustic reasons or comfort or to cover an uneven floor, then carpet tiles should be used to allow easy repair of damaged areas; solid block colour vinyl and carpet should be avoided, as should very light colours
77. For window coverings, pull-up/down or vertical side-moving slat-type blinds are preferred; avoid plastic horizontal slat-type blinds as these are easily damaged and difficult to clean
78. Detailed planning and design guidelines and technical standards on furniture and finishes for modern learning spaces have been prepared by various commercial

design firms, associations and overseas universities, including (in addition to sources mentioned in points 34 and 51 above), Steelcase, Hermann Miller, EDUCAUSE, La Trobe University, Queensland University of Technology (see Table 6 for links); WG ILS is referred to these sources for further information

Booking, Promotion, Signage, Maintenance, Management, Oversight¹⁴

79. There should be on-line booking panels on the door of each managed space (or some other easily accessed system, such as mobile app or online booking system) showing usage and availability and allowing spontaneous bookings to be made by staff and students, thereby increasing flexibility, space for breakout sessions, and providing more informal learning space
80. Characteristics, uses and different potential configurations of each new/renovated space should be showcased and actively promoted by, e.g., video tours and posters displayed around Campus, multi-media, workshops, newsletters
81. Features of each room should be shown clearly in the central booking system, and by default should be sent to every teacher allocated the space for a timetabled class
82. There should be regular inspection of spaces and installed facilities, and a pro-active and effective programme of ‘housekeeping’, covering (but not limited to) cleaning, maintenance and minor repair/improvement (with an effective Feedback/Response loop)
83. Small accessories provided, such as spare batteries, whiteboard pens and cleaning pads, should be checked/replaced frequently by learning support services as part of their ‘housekeeping’ activities
84. Spaces should be and feel safe for students and staff, with some form of easily used actively monitored helpline to Campus Control Centre

Signing Off, Evaluation and Forward Planning

85. All work and components of new/renovated spaces must be tested and found to be acceptable (meeting agreed design principles, guidelines as on the checklist and other project documentation) and in compliance with the health and safety

¹⁴ *The appointment of a full-time Co-ordinator of Learning Space and Support is recommended to support the integration of the various activities and processes and involvement of stakeholders*

- standards/statutory requirements (IAQ Test for compliance with standards, Form of Compliance for compliance with Buildings Energy Efficiency Ordinance, Form 251 for fire service installations, WR1 for electrical installations, etc.) before the work is signed off as meeting job requirements for handover and occupation and final payment is made to external consultants
86. Some budget (~10%) for each project should be allowed for modification and refinement of new/renovated spaces, with adjustments based on inspection and user feedback
 87. There should be an annual refurbishment budget to match replacement/ upgrade/ cycles operating as a matter of course
 88. There should be a rolling plan for redecoration, improvements, AV/IT upgrades and major renovations (see Figure 1)
 89. There should be regular collection of student and staff feedback on each space, with follow-up action taken, recorded, and communicated back to end-users: this could be via various means, and include social media/WhatsApp
 90. Highly innovative spaces, facilities or features should be prototyped and evaluated before large-scale adoption
 91. Different learning spaces and precincts across Campus should be planned with equity in mind so that all students have access to different types of complementary spaces with similar degrees of flexibility, comfort, connectivity etc.
 92. Ideas for innovative spaces/facilities/features can be obtained from professional associations, educational conferences, commercial design firms, and these should be actively sought on an ongoing basis for efficient forward planning and prototype piloting
 93. Students and staff should be engaged in the planning and design processes as well as in the evaluation process; this can be by running learning space design idea competitions and open forums, having a Learning Ideas Facebook page, involving students in finding and designing/creating informal distributed spaces
 94. Senior students and RPg students should be appointed as learning mentors or ‘space guides’ to help find/design/create/promote/manage/oversee certain spaces, such as the Zone and informal distributed spaces
 95. A full-time Co-ordinator of Learning Space and Support and a Consultant should be appointed to support the integrative platform of planning and support needed for the

- effective use, management, oversight and planning of new/renovated learning spaces for continuous improvement of the learning environment at PolyU and ensure continuity and consistency across all learning space renovation projects
96. A CoP for Learning Space Modernization should be formed and supported to nurture learning space Champions and generate ideas for learning space innovations
 97. In forward planning for new/renovated learning spaces and design of learning precincts, needs analyses should be performed, involving visual inspection and the views of students and staff, and with PolyU's strategic goals in mind
 98. PolyU via WG ILS should take up membership of some professional organizations that specialize in learning space design and support (see Table 6)
 99. WG ILS should send representation to learning space conferences and workshops overseas for ideas exchange and networking opportunities; for example, there is an annual conference on 'next generation learning spaces' in UK each year and an annual EDUCAUSE conference in Brisbane (see Table 6 for links)
 100. PolyU should consider liaising/partnering with universities overseas that have extensive experience in modernization of learning spaces, such as QUT, U Melbourne and UBC

Figure 1. Recommended Learning Space Maintenance and Upgrade Cycles

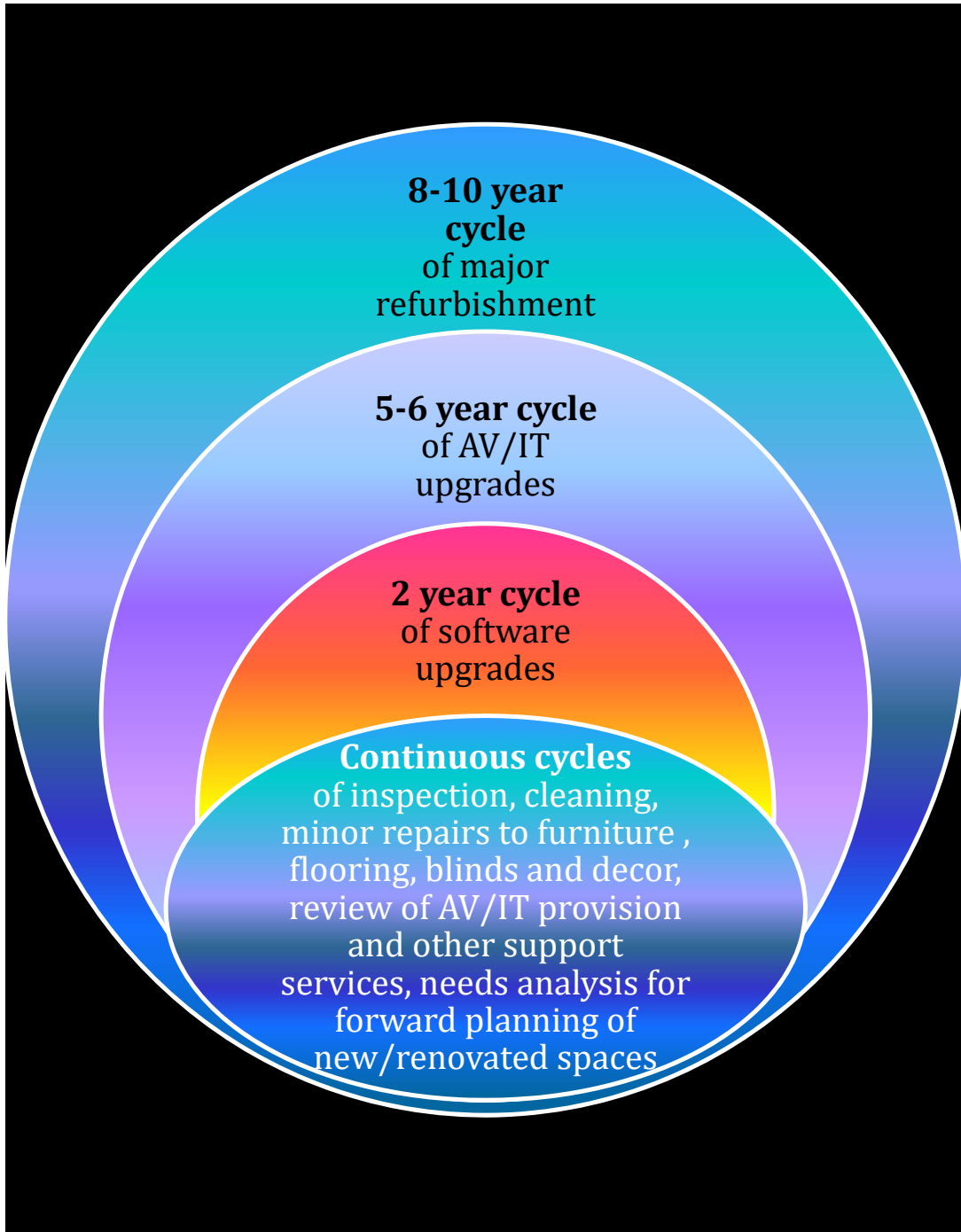


Table 5. Space Allocation in Different Types of Learning Space [m²/student] in PolyU and in Comparison to that Used/Recommended by Other Universities and Associations (from which data are available in publications or websites)

Institution	Major Lecture Theatre/ Auditorium: tiered floor, fixed chairs +/- tablet tables (capacity 200+)	Lecture Theatre; Tiered floor; some flexibility in seating ¹⁵ , fixed tables: capacity 100-200)	General Classroom: flat floor; fixed tables, moveable seats: (capacity<100)	General Classroom: flat floor moveable tables and chairs (capacity ≤80)	Seminar/Interactive/ Collaborative Space; flat floor; flexible furniture (capacity ≤80)	Informal/ Distributed Space
PolyU (→ 2016)* Recommended for 2017→	0.83-1.07 <i>minimum of 1.5</i>	<1.0-1.06 <i>minimum of 1.8</i>	-	1.0-1.7 <i>minimum of 2.5</i>	1.6-2.5 <i>minimum of 2.5</i>	
La Trobe University	1.2-1.5	2.0-2.3	2.0-2.2		2.0-2.2	
University of Connecticut	0.92-1.3	1.1-1.4	1.7-1.8	1.7-2.76	2.3-2.76	
University of Newcastle	1.5	2.5	2.0		3.5	0.25
University of British Columbia	1.85-2.2	2.2-2.6	2.0	2.0-2.6	2.2-2.6	
University of New York	1.6		1.6	2.7	2.7-3.4	
University of Technology Sydney	1.1-1.3			2.0		
TEFMA	1.7-1.8	1.7-1.8	2.0		2.0	
AAPA	1.5-1.7	1.5-1.7			2.0	

TEFMA is the Tertiary Education Facilities Management Association; AAPA is the Australasian Association of Higher Education Facilities Managers (now replaced by TEFMA)

*for the yet-to-be renovated rooms; space allocation in 2015-17 renovated rooms is ~30% greater

¹⁵ e.g. using double tier rows with moveable or rotating chairs

Figure 2. Examples of Light, Durable Flexible Furniture Suitable for Interactive Design Learning Spaces (flat floor rooms capacity up to 80);
sources Ergosystem www.ergosystem.com.au; Specfurn www.specfurn.com.au; Steelcase <http://www.fastcodesign.com/1662898/how-steelcase-redesigned-the-21st-century-college-classroom>; Herman Miller <http://www.hermanmiller.com/research/solution-essays/rethinking-the-classroom.html>



Nodal chair with tablet table



Learning 'islands' with mobile white boards ('huddle board')



Flip top tables

Light, durable, moveable chairs



Table 6: Recommended Sources of Further Information on Principles of Learning Space Design and Technical Standards

University and Academic

Australian Learning and Teaching Council. 2011 Final Report on Spaces for Knowledge Generation www.skgproject.com

Australian Learning and Teaching Council. Retrofitting University Learning Spaces 8 key principles to guide the redevelopment of university learning spaces <http://www.altc.edu.au>

La Trobe University Teaching and Learning Spaces – Design Guidelines http://www.latrobe.edu.au/_data/assets/pdf_file/0006/623445/S003-Design-Standards.pdf

Massachusetts Institute of Technology <http://web.mit.edu/edtech/themes/learningspaces.html>

McGill University Principles for Designing Teaching and Learning Spaces <http://www.mcgill.ca/spaces/tlswg/principles>

National Survey of Student Engagement Benchmarks of Effective Education Practice. http://nsse.iub.edu/pdf/nsse_benchmarks.pdf

New York University <https://www.nyu.edu/content/dam/nyu/spacePriorities/documents/13-1008%20USPWG%20Classrooms%20FINAL.pdf>

Physical and virtual learning spaces in higher education: concepts for the modern learning environment. Keppell M, Souter K, Riddle M, eds. (2011). IGI Publishing (IGI Global), Hershey, PA. United States. ISBN 978-1-60960-114-0.

Queensland University of Technology www.qut.edu.au

RMIT University <http://www1.rmit.edu.au/property/services/dsb>

UK Higher Education Learning Space Toolkit www.ucisa.ac.uk/learningspace

University of British Columbia Learning Space Design Guidelines 2014 <http://www.infrastructuredevelopment.ubc.ca/facilities/learningspaces/documents/LearningSpaceDesignGuidelines.pdf>

University College London Learning Space Guidelines https://www.ucl.ac.uk/isd/services/learning-teaching/elearning-staff/documents/ucl-spaces-av-guidelines_v3_0_1.pdf

University of Melbourne /U Melbourne International Centre for Classroom Research <https://pursuit.unimelb.edu.au/features/rearranging-the-way-we-learn>
www.iccr.edu.au/

University of New South Wales <https://www.learningenvironments.unsw.edu.au/>

University of Technology Sydney https://www.uts.edu.au/sites/default/files/Design_Guidelines_160608.pdf

Professional, Technical and Educational Associations

Audio Visual Design Guidelines: Tertiary Learning Spaces. Association for Audio Visual and Education Technology Management Inc. 2015. https://www.aetm.org/wp-content/uploads/2014/10/AETM_Audio_Visual_Design_Guidelines_2nd_Edition_2015_protected.pdf

Association of University Directors of Estates <https://www.aude.ac.uk/>

Association for Audio Visual and Education Technology Management Inc. 2015. www.aetm.org

EDUCAUSE <https://www.educause.edu/LearningSpaces/10569>

INFOCOM

https://www.infocomm.org/cps/rde/xbcr/infocomm/InfoComm_AVITHighEd_Dec14.pdf

JISC <https://jisc.ac.uk>

Next Generation Learning Spaces <https://nextgenlearning.iqpc.co.uk/>

Sketchup Design Software <https://www.sketchup.com/learn>

SCHOMS www.schoms.ac.uk

Society for College and University Planning www.scup.org

Tertiary Education Facilities Management Association (TEFMA) www.tefma.com/

The Society of Light and Lighting of the Chartered Institution of Building Services Engineers www.sli.org.uk

Universities and Colleges Information Systems Association <https://www.ucisa.ac.uk/>

Commercial Designers/Suppliers

Ergosystem www.ergosystem.com.au

Specfurn www.specfurn.com.au

Steelcase <http://www.fastcodesign.com/1662898/how-steelcase-redesigned-the-21st-century-college-classroom>

Hassell Design Studio www.hassellstudio.com

Herman Miller <http://www.hermanmiller.com/research/solution-essays/rethinking-the-classroom.html>

6. Concluding Remarks and Summary of Main Recommendations

There are rapid developments in learning and teaching. These drive and are supported by advances in learning space design and AV/IT provision. PolyU has the vision of enhancing the student experience and promoting sustained learning through more interactive, enquiry-based, student-centred, collaborative learning using a mix of face-to-face, blended and on-line approaches. This requires a diverse mix of different types of modern learning spaces, as well as appropriate AV/IT provision and effective support services. There is also an aspiration to create a community of learning that is inclusive, welcoming and comfortable, and that promotes a sense of well-being and belonging for students and staff.

Main recommendation #1: create a suite of different types of technology-enabled learning spaces that are designed for mobility and flexibility, connectivity, resilience and adaptability to changing needs, thereby increasing their longevity and cost-effectiveness.

In identifying physical spaces for revitalization, spaces need to be firstly audited, trouble spots identified and, importantly, staff and student views must be sought and the Vision of PolyU for the future taken into account. The current situation at PolyU in terms of supply and demand of rooms of certain capacities and types, and changes in pedagogical policy also determine how learning spaces are to be changed. Highly innovative ideas in learning spaces and AV/IT provision should be piloted and evaluated before large-scale adoption. In its work since 2013 WG DCFELT/ILS has performed this work very well, and has gathered significant experience to build on as the WG ILS guides and oversees the major revitalization of PolyU learning spaces. For this work to proceed smoothly and create the ‘future proof’, fit-for-purpose and cost-effective learning spaces/environments that will meet the needs of PolyU, its students, staff and other stakeholders in the coming years, there is a requirement for clear guidelines on design principles for new/renovated learning spaces. These should be based on accepted principles, best practice and exemplars from leaders in the field, as well as the WG experience of the past few years. This Report provides this information and is intended to be a detailed and valuable guide for WG ILS.

Main recommendation #2: use the supply/demand data, the design tips and the 100 design principles presented in this Report to guide the planning, design, creation, management and oversight of new/renovated learning spaces.

Before detailed planning of new/renovated spaces begins, it is important to perform a needs analysis to clarify how the new/renovated space will be different from before, and how it will be an improvement on the existing space. What will it add to and how will it complement other learning spaces in the vicinity (precinct)? How will the new space fit into PolyU's strategic plan and Vision for the future?

Main recommendation #3: to guide planning, create and use a 'needs analysis checklist' for each new/renovated space.

'Virtual spaces' created by information technology expand learning opportunities. These, along with the creation of interactive learning spaces, collaborative learning zones, learning cafés, learning pods and niches, hot desks, among others, can produce a seamless transition between formal and informal, on-line and off-line, individual and collaborative learning will be enabled. Informal spaces should be distributed around Campus, and form part of 'learning precincts' that complement the managed, more formal types of learning space. Learning precincts and their constituent spaces should be planned with equity in mind so that all students have access to different types of complementary spaces with similar degrees of flexibility, comfort, connectivity etc, and these should be mapped and promoted.

Main recommendation #4: a range of different types of learning space should be arranged equitably around Campus in the form of 'learning precincts', with AV/IT support, and with digital signage and other forms of mapping to guide users to them.

A revitalized, modernized learning environment must be supported by an integrative platform of effective planning and support services for campus development, facilities management, procurement and learning support and oversight.

Main recommendation #5: The Mission/ToR of campus development, facilities management and learning support services, and procurement processes should be reviewed and amended to meet user needs in a revitalized, modernized learning environment.

Main recommendation #6: A full-time Co-ordinator of Learning Space and Support and a Consultant with education design/architecture background should be appointed to facilitate communication between WG ILS, support services/units, staff and students, and the planning, creation, management, evaluation and oversight of learning spaces, identifying best practices internationally, and facilitating networking and planning for future developments for continuous improvements, and to ensure continuity and consistency across all learning space renovation projects.

Furthermore, a pro-active scheme of review, maintenance, minor repairs, redecoration, improvements, upgrades and major renovation cycles and feedback loops is needed. As users, student and staff must be able to easily feed in comments and receive feedback on action taken or planned in relation to learning space provision and support services.

Main recommendation #7: Formulate a pro-active and comprehensive scheme of work cycles for the review, maintenance, minor repair, redecoration, improvement, and major renovation/upgrade of learning spaces, AV/IT provision and support services and needs, incorporating how information is gathered from users, visual audits, and feedback loops.

In relation to detailed specifications and standards for the planning, creation and outfitting of new/renovated learning spaces, there is much to be gained by WG ILS and the various support units in joining professional associations, attending workshops and conferences and networking with leaders in the field of learning space design.

Main recommendation #8: WG ILS should identify and join/make links with relevant and useful partners, organizations and associations, and arrange for representation at relevant conferences and workshops.

To engage students and staff and help promote a community of learning and sense, students and staff should (in addition to taking part in needs analysis exercises) be informed of plans for new/renovated learning spaces, introduced to new/renovated spaces and new facilities, and involved in their evaluation for refinement and future renovations.

Main recommendation #9: There should be effective means of informing and involving staff and students in the planning and evaluation of new/renovated learning spaces.

There should be effective and regular promotion and showcasing of new/renovated spaces by means of newsletters, videos and posters, multi-media, and by running exhibitions, conferences, workshops in or featuring new/renovated spaces.

Main recommendation #10: Various promotional activities should be organized to introduce and showcase new/renovated learning spaces/facilities to all members of the PolyU community and beyond.

Appendix 1
Description of AV/IT Levels I, II, III¹⁶
Learning and Teaching Spaces – AV/IT functional Levels Outline – 2017

Overview:

The purpose of the AV/IT levels is to create categories of equipment that will be deployed to achieve defined levels of pedagogical function and provide indicative planning budget information and set expectations for room functionality. The technology deployed in a particular space or type of space will vary over time and according to the size and dimensions of the space to be serviced. However, from a pedagogical perspective, the functional capability of a space can be described. The following general AV/IT Functional Levels I, II, and III are a reflection of what can be done in a space from the functional perspective of learning and teaching. This is in alignment with the core concept that ‘form follows function’ and that AV/IT provision is to support the intended pedagogical function (purpose) of the space.

The specifics of equipment deployment will vary with the specific spaces but the overall functional capabilities can be outlined using these AV/IT functional levels.

Note 1: The functional levels are subject to annual review and may be altered as the learning and teaching practices change. Further, technology is changing and improving rapidly, therefore the technology components used to achieve the functional levels will be adjusted accordingly.

Note 2: All formal learning spaces will be provided with at least Level I provision.

Level Zero:

Where a space does not meet the current minimal functional capabilities or where equipment used in the space has become obsolete or is no longer fit for purpose or generally considered to be sub-optimal.

As an extreme example, a classroom with only a chalk board and a non electronic teacher desk would be considered sub-optimal and at Level Zero.

¹⁶ With grateful thanks to Mr. Gerrit Bahlman, former Director of ITS, for supplying this information.

Level I:

The majority of learning spaces (70% target) will function at this level. This base functional level includes the ability to:

- i. Project at least two different visual electronic sources onto screens concurrently
- ii. Project information from both fixed and portable computer sources from a teaching station
- iii. Project writing, documents and objects using a visualizer from a teaching station
- iv. Project wirelessly from mobile devices such as pads, tablets, and mobile phones
- v. Allow audio signals from multiple sources to be amplified over mounted speakers
- vi. Optionally, to provision wireless microphones as an audio signal source
- vii. Control lighting, sound, projection sources using a common standard control panel
- viii. Use WiFi devices as part of learning, teaching and assessment
- ix. Call for immediate technical support via some form of ‘hot line’ mechanism in the event of technical difficulties

Level II:

In addition to the base functionality of Level I, a Level II space will include the ability to:

- (i) Project at least three different visual electronic sources onto screens concurrently
- (ii) Capture and record a presentation including screen content and the presenter using portable or fixed recording equipment
- (iii) Differentiate lighting levels within the room to facilitate video recording
- (iv) Use High Definition tracking cameras and tracking microphones
- (v) Suppress extraneous noise sources
- (vi) Produce high quality stereo sound using a multi-channel stereo audio system
- (vii) Support high usage WiFi applications

Lecture capture capability spaces (20%) of the Learning and teaching space inventory.

Some specialized learning spaces, such as the Zone (with collaborative multi-media MoCoW-equipped learning stations) and other flat floor interactive classrooms will have selected elements of Level II provision, as needed for their pedagogical purpose.

Level III:

In addition to the combined functionality of Levels I and II, a Level III space will include the ability to support:

- (i) High Definition multi-site Video Conferencing
- (ii) High Definition video recording and lecture capture
- (iii) Linking of Level 3 classrooms via video conferencing
- (iv) Video streaming and broadcasting
- (v) High-end multimedia capabilities such as 3D enabled displays.
- (vi) Integration of multiple projections and displays from multiple video sources

Remarks:

- Level 0 is regarded as being currently sub-optimal although it is the current level of provision of most GT/LT rooms on campus. Equipment and facilities are older and not capable of delivering the quality now available with newer technology.
- It is proposed that all GT/LT rooms should be migrated to the Level I standard on an ongoing basis as technology improves. This ‘normal’ level of provision will continuously improve over time, i.e. what constitutes Level I will be reviewed and updated on a regular basis. Level II provides additional functionality above the Level I provision. Currently, Level II functional spaces will include equipment that will support lecture capture and recording. Level III spaces will be outfitted to support full video conferencing facilities in addition to the lecture capture capabilities found in Level II spaces.
- The proportion of Level I, II, III functional rooms will be driven by the needs and practices of teaching staff. However, as an initial target, 70% of the General Teaching Room inventory is targeted to be at Level I. Lecture capture facilities (Level II) will target 20% of the inventory and Level III rooms will target 10% of the inventory. Currently, most spaces are at Level 0 with only a small number at Level I and Level II. There are currently only one Level III spaces in the University.
- Cost estimates include infrastructural setup, implementation by contractors and equipment costs. Deployed equipment will be able to be intelligently monitored and managed to reduce recurrent labour costs and improve incident response times for teachers and students.

- Ongoing annual maintenance for equipment has been estimated at 5% for all AV/IT related upgrade items after the first year. This recurrent cost will need to be incorporated in the operational maintenance budget. Technology trends suggest that (1) the quality and performance of the AV equipment to be adopted will be higher, and hence more costly in case of replacement; (2) there will be more projection and/or display devices; (3) there will be increased use of video capturing technology; (4) there will be extended use of the web-based A/V resource management and remote control to all GTs (this facility is now available in all LTs on campus and the GTs in Phase 8 and JCIT and will be extended to other rooms on main campus).
- A regular programme of annual upgrades will be needed to maintain the quality of the equipment over a 6 year lifetime.
- Costs for a particular space will vary dependent on the size and configuration of the space being upgraded. Specific costs will need to be determined for each instance. The costs provided above are indicative of a 'typical' configuration and are intended as a rough estimate for budgeting purposes only.

Appendix 2

Examples of Components Covered in Detailed Guides for Construction and Fitting Out of Learning Spaces from Selected Universities Overseas and Professional Associations¹⁷

- Budgeting and planning
- Building standards, including architect design, plumbing, acoustics, ventilation, temperature control, mechanical, electrical systems, accessibility, fire safety etc.
- Room geometry, flooring (tiered or flat), ceiling heights, lighting, doors
- Environmental issues, economy and sustainability
- Project documentation, oversight and signing off
- AV/IT infrastructure
- Presentation technologies (projectors and screens (size, resolution, contrast) whiteboards)
- Hardware and Software for multi-source displays and collaborative activities
- Web streaming, videoconferencing, lecture capture, virtual reality, Cloud-based systems
- Wireless communication
- Control rooms and panels
- Internet access
- Support for own devices
- Digital signage
- Layout and furnishings
- Planning, management, support and communication - roles and responsibilities
- Evaluation

¹⁷ For example:

INFOCOM International ®

https://www.infocomm.org/cps/rde/xbcr/infocomm/InfoComm_AVITHighEd_Dec14.pdf

La Trobe University Teaching and Learning Spaces – Design Guidelines

http://www.latrobe.edu.au/_data/assets/pdf_file/0006/623445/S003-Design-Standards.pdf

University of British Columbia Learning Space Design Guidelines 2014

<http://www.infrastructuredevelopment.ubc.ca/facilities/learningspaces/documents/LearningSpaceDesignGuidelines.pdf>

University of Technology Sydney

https://www.uts.edu.au/sites/default/files/Design_Guidelines_160608.pdf

Other sources are given in Table 6

Appendix 3
AV Infrastructure Guidelines for Higher Education of INFOCOM International®

This document is provided in soft copy only



Modernizing Learning Spaces at PolyU: A Guide for Learning Space Needs, Design Principles and Standards

Professor Iris F.F. Benzie