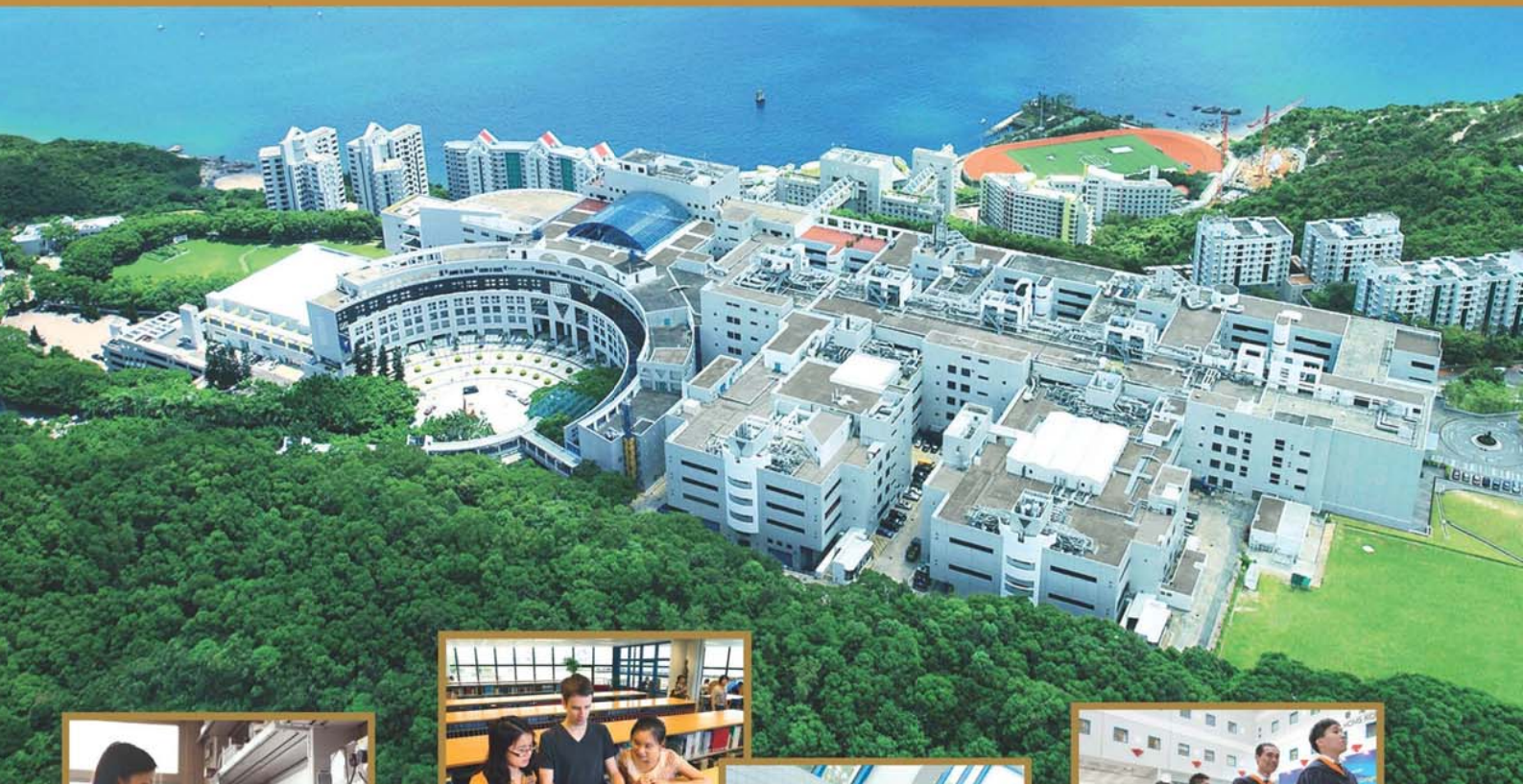


Report of a Quality Audit

of The Hong Kong University of
Science and Technology



October 2015

Quality Assurance Council

**Quality Assurance Council
Second Audit Cycle**

**Report of a Quality Audit of
The Hong Kong University of
Science and Technology**

October 2015

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The Quality Assurance Council is a semi-autonomous non-statutory body under the aegis of the University Grants Committee of the Hong Kong Special Administrative Region of the People's Republic of China.

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PREFACE

Background

The Quality Assurance Council (QAC) was established in April 2007 as a semi-autonomous non-statutory body under the aegis of the University Grants Committee (UGC) of the Hong Kong Special Administrative Region of the People's Republic of China.

The UGC is committed to safeguarding and promoting the quality of UGC-funded institutions and their activities. In view of institutional expansion of their activities and a growing public interest in quality issues, the QAC was established to assist the UGC in providing third-party oversight of the quality of the institutions' educational provision. The QAC aims to assist the UGC in assuring the quality of programmes (however funded) at first degree level and above offered by UGC-funded institutions.

Conduct of QAC Quality Audits

Audits are undertaken by Panels appointed by the QAC from its Register of Auditors. Audit Panels comprise local and overseas academics and, in some cases a lay member from the local community. All auditors hold, or have held, senior positions within their professions. Overseas auditors are experienced in quality audit in higher education. The audit process is therefore one of peer review.

The QAC's core operational tasks derived from its terms of reference are:

- the conduct of institutional quality audits
- the promotion of quality assurance and enhancement and the spread of good practice

The QAC's approach to quality audit is based on the principle of 'fitness for purpose'. Audit Panels assess the extent to which institutions are fulfilling their stated mission and purpose and confirm the procedures in place for assuring the quality of the learning opportunities offered to students and the academic standards by which students' level of performance and capability are assessed and reported. The QAC audit also examines the effectiveness of an institution's quality systems and considers the evidence used to demonstrate that these systems meet the expectations of stakeholders.

Full details of the audit procedures, including the methodology and scope of the audit, are provided in the QAC Audit Manual Second Audit Cycle which is available at <http://www.ugc.edu.hk/eng/doc/qac/manual/auditmanual2.pdf>.

EXECUTIVE SUMMARY

This is the report of a quality audit of The Hong Kong University of Science and Technology (HKUST) by an Audit Panel appointed by, and acting on behalf of, the Quality Assurance Council (QAC). The report presents the findings of the quality audit, supported by detailed analysis and commentary on the following areas:

- the setting and maintaining of academic standards
- the quality of student learning opportunities
- student achievement
- postgraduate provision
- quality enhancement

The audit findings are identified as features of good practice, recommendations for further consideration by the institution, and affirmation of progress with actions already in place as a result of its self-review. The report also provides a commentary on the Audit Themes: Enhancing the student learning experience; and Global engagements: strategies and current developments.

Summary of the principal findings of the Audit Panel

- (a) It was apparent that the University has been committed to addressing the QAC concerns raised during the first cycle of quality audits in 2010. In particular, there is evidence that the University administration and committees have engaged in a rigorous process to ensure implementation of the remedies identified. Given the devolved nature of the institution, the impact of these processes is variable. Continued effort on the part of the University is required to ensure that understanding of the importance of quality assurance in academic activities permeates the institution.
- (b) The University has developed effective mechanisms for setting and maintaining academic standards. Evidence was found that HKUST has managed substantial change while seeking to balance a culture that respects academic autonomy and values the expertise of faculty with the requirement to provide public assurance that academic standards are being maintained. Positive responses to previous recommendations concerning academic standards are noted in this report and the Audit Panel notes the achievement of the University in establishing a comprehensive and integrated annual reporting framework on learning and teaching that has been embraced by all levels of the University and leads to timely reporting of outcomes and shared understanding of good practice. HKUST has identified the need to expedite full implementation of periodic review procedures for all taught postgraduate programmes.

- (c) It was clear that the University has successfully planned, implemented and embedded several substantial changes to the undergraduate student learning experience since the last QAC Quality Audit. HKUST has been creative, broad-based and detailed in its approach to implementing the 4-year degree programme. The new tri-modal approach to undergraduate education is having a transformative effect for the University.
- (d) Much evidence was found of the investment made in faculty development and student support to effect the transition. HKUST has a broad range of provision to enhance faculty development by Schools, Departments/Divisions and by staff from the Center for Enhanced Learning and Teaching. The University uses a range of evidence of teaching effectiveness in recruiting and rewarding faculty.
- (e) While progress has been made, a previous recommendation concerning consideration and development of an e-learning strategy could have been followed through with a greater sense of urgency and pedagogic purpose. HKUST needs to enunciate and disseminate more explicitly and effectively the pedagogical underpinning of its e-learning strategy and expedite its implementation, integrating blended learning projects within the regular curriculum development process.
- (f) HKUST was commended in the 2010 QAC Quality Audit Report for its training of Teaching Assistants (TAs) and the effectiveness of the system of TA coordinators. The Audit Panel was, however, concerned to hear concerns from several quarters about the language competence of TAs and the level of uptake of professional development provision. HKUST is taking action to build English competence and develop teaching skills for new TAs.
- (g) HKUST is implementing a tracking system designed to monitor the whole student experience, including progress through the curriculum, engagement with advisors, and participation in the co-curriculum. Additional communication and training in the system is needed to apprise students and faculty of its purposes and to clarify the ways in which both parties are required to make use of the system.
- (h) The University has responded thoughtfully and robustly to the challenges of moving from norm-referenced to criterion-referenced assessment, paying close attention to the issue of potential grade inflation. HKUST has a rigorous and scholarly approach to quality improvement and the maintenance of standards in grades as a result of this oversight.
- (i) It was apparent that the academic environment of HKUST is conducive to the development of graduates who are sought-after employees. The University has an impressive standard of achievement of graduate employment and the proportion of its graduates pursuing further study. While there is evidence of effective employer engagement, the Audit Panel questioned whether the decision

to discontinue gathering and responding to regular systematic feedback from employers and other independent external stakeholders is in the best interest of future graduates. The University needs to develop and articulate a systematic strategy for the effective use of employer feedback to enhance the tri-modal learning environment, student achievement and curricula of all programmes.

- (j) Quality enhancement is predicated on self-critical analysis of results to effect improvement. The 2010 QAC Quality Audit Report concluded that more could be done to spread information about successful innovations across Schools and encouraged the Committee on Teaching and Learning Quality to develop a strategy to this end. Annual school reports now show increased use of evidence and follow-up on students' feedback. They also show a growing commitment to critical reflection and to 'closing the quality loop'. Examples of good practice in using evidence to improve student learning are placed on the HKUST website, and some of these examples are used by other Departments/Divisions as they determine their own plans for improvement for the coming year.
- (k) The 2010 Report also noted that data held by HKUST were not well exploited, had not been interpreted and were difficult to interrogate. The Audit Panel was not always provided with complete, extant reports of data, presenting the overall findings of data analysis required for external quality assurance purposes. The Audit Panel also noted that some HKUST faculty are requesting access to more useable summary data, such as trends over a few years, data at individual course level and responses to open ended questions. While there is a heavy reliance on peer review and qualitative benchmarking, the University is aware of the importance of comparative data. HKUST has been taking steps to extend external benchmarking across all facets of the University, routinely to include data-based comparisons in addition to peer-review benchmarking.
- (l) The University has recently expanded well-regarded programmes for research which are popular, selective and valuable to graduates as future researchers or in other career paths. This report encourages HKUST to build on its strength by improving the quality of teaching by TAs and providing research supervision skills development at all levels.
- (m) There was evidence that quality assurance of taught postgraduate programmes has not kept pace with undergraduate provision, for example in respect of programme review. Similarly, the learning opportunities provided to taught postgraduate students are not uniformly as well developed as those of undergraduate students and would benefit from enhancement by the University. HKUST, in a recent review, has decided to roll out quality assurance processes available to undergraduate programmes to taught postgraduate programmes.
- (n) The strategic vision for the development of the taught postgraduate portfolio articulated to the Audit Panel by senior managers was not widely or well understood across the University. In light of the work underway at

undergraduate level, and the aspirations of HKUST, the Audit Panel concluded that there is an urgent need to consider the taught postgraduate learning environments across all disciplines in a similar manner. HKUST would benefit from developing and promulgating a strategic vision and plan for taught postgraduate provision that can be embraced by the broader academic community.

- (o) The Audit Themes – Enhancing the student learning experience and Global engagements: strategies and current developments, afforded the Audit Panel the opportunity to focus more closely on these cross-cutting lines of enquiry. In considering the theme ‘Enhancing the student learning experience’, evidence was found of a range of projects introduced as part of the new tri-modal approach to undergraduate education and the blended learning initiative. Feedback from students about this holistic approach was mixed, however, and this report highlights the need to integrate these complementary aspects of curriculum design more closely.

- (p) The targets the University has set itself for overseas exchange opportunities are bold and the benefits to participants are demonstrable. The Audit Panel notes the substantial and successful efforts of HKUST to provide international service learning and exchange opportunities for its students and the University’s proactive efforts in securing a large number of international agreements. In considering the theme ‘Global engagements: strategies and current developments’, however, this report suggests that opportunities for students to gain an international experience through campus life or via the curriculum could be developed further. Faculty and TAs should be trained in cross-cultural competency in formal and informal learning, teaching and assessment, given the significance of this area to HKUST.

1. INTRODUCTION

Explanation of the audit methodology

1.1 This is the report of a quality audit of The Hong Kong University of Science and Technology (HKUST) by an Audit Panel appointed by, and acting on behalf of, the Quality Assurance Council (QAC). It is based on an Institutional Submission which was prepared by HKUST following a period of self-review and submitted to QAC on 3 November 2014. A one-day Institutional Briefing and Initial Meeting of Panel members was held on 2 December 2014 to discuss the detailed arrangements for the audit visit.

1.2 The Audit Panel visited HKUST from 27 to 29 January 2015 and met the President and senior managers; deans and heads of department; teaching staff, including those responsible for supervision of postgraduate research students; academic support staff; a wide range of students, including undergraduates, taught postgraduates and research postgraduates; employers and alumni. The Audit Panel evaluates:

- the setting and maintaining of academic standards
- the quality of student learning opportunities
- student achievement
- postgraduate provision
- quality enhancement

and identifies its audit findings, including features of good practice, recommendations for further consideration by the institution, and affirmation of progress with actions already in place as a result of its self-review. The Audit Panel provides a commentary on the Audit Themes: Enhancing the student learning experience; and Global engagements: strategies and current developments.

Introduction to the institution and its role and mission

1.3 HKUST was established in 1991 as an international university. It set out to provide the entrepreneurs, scientists, engineers and global business managers that its founders believed were required to propel Hong Kong towards a knowledge-based economy. Its mission, set out in the University Ordinance, is:

To advance learning and knowledge through teaching and research, particularly; in science, technology, engineering, management and business studies; at the postgraduate level; and to assist in the economic and social development of Hong Kong.

Since establishment it has grown to almost 9 000 undergraduate students, 2 500 taught postgraduate students and 1 700 research postgraduate students. It employs over 600 faculty members.

The University's vision is to be a leading research-led university with significant international impact and a strong local commitment.

2. THE SETTING AND MAINTAINING OF ACADEMIC STANDARDS

- 2.1 HKUST is a self-accrediting institution and is therefore responsible for setting and maintaining the academic standards of its higher education qualifications and awards. It is also responsible for ensuring that students are provided with appropriate opportunities to achieve these standards and for calibrating the achievement of individual students through the work they submit for assessment. In this report, academic standards are viewed through these two broad frameworks for interpretation: first, the academic standards set for programmes of study and their manifestation in graduate learning outcomes, which is addressed in this section of the report; second, levels of individual student achievement against those academic standards, as measured and differentiated by assessment, which is addressed below under Student Achievement (see p.20).
- 2.2 In self-accrediting institutions, standards are 'secured through the interaction of subject communities and through the expectations of employers and other stakeholders'. External reference points can include legislative and professional association standards, requirements for graduate study in Hong Kong and elsewhere, benchmarking against international standards and practices at international comparator universities and evidence gathered from employers.
- 2.3 HKUST states that it seeks to maintain a balance between a culture that respects faculty expertise and academic autonomy while providing for an assurance that academic standards and the quality of educational programmes are being maintained and enhanced. The basis of its confidence in the academic standards of its qualifications and awards includes the arrangements in place for routinely benchmarking students' work against international standards.
- 2.4 HKUST utilises external reference points to assure academic standards at five key points. These are programme approvals, periodic reviews, performance metric reports, comparison of course grades for outbound exchange students and a review of course grade distribution and award classifications, conducted using local and international data.

- 2.5 During the 2014 critical self-review that HKUST undertook in preparation for the second cycle of QAC Quality Audit, the University identified five general principles of review. The Audit Panel endorses HKUST's subsequent decision that the Committee on Teaching and Learning Quality (CTLQ) would in future have oversight of all review exercises to ensure they conform to this standard.
- 2.6 The Audit Panel considered how effectively HKUST sets and maintains the academic standards of its qualifications and awards, with reference to its own mission, purposes and internal deployment and in the wider context of international and external standards. Its findings are set out below.

Setting academic standards through programme approval

- 2.7 In order to examine how HKUST sets standards during programme approval, the Audit Panel accessed online guidelines for Approval of Programs and Changes to Programs which form part of HKUST's Quality Assurance Framework (QAF). They also requested an audit trail of documentation relating to several recent programme approvals of undergraduate programmes (majors and minors), all offered as part of the new 4-year curriculum. Matters such as benchmarking academic standards internally and externally were discussed with senior managers and teaching staff who had recently been involved in programme approval processes.
- 2.8 Informed by the triennial academic development planning process of the UGC, individual programme initiation is in practice a bottom-up process. HKUST considers that recruitment of international faculty provides an element of automatic benchmarking of academic standards in programme approval and the identification of graduate learning outcomes. Faculty with subject expertise initiate documentation which is examined first at Departmental/Divisional and then at School level. When satisfied, Schools submit to the Committee on Undergraduate Studies (CUS) or Committee on Postgraduate Studies (CPS) for endorsement at that level. Once agreement has been reached, a recommendation for approval is made to Senate. The Audit Panel was informed that this is frequently an iterative process which continues until all parties are satisfied with the proposal's academic standards, quality and coherence and are convinced that there exists a market need for the programme.
- 2.9 Online templates and guidance for programme approval documentation, seen by the Audit Panel, require proposers to include a comparative evaluation of the proposal with equivalent programmes. Documentation must also include evidence of relevant employment figures. Approval of taught postgraduate programmes requires recommendations from at least two external referees, one of whom must be overseas faculty.

- 2.10 The Audit Panel concluded that programme approval processes are both rigorous and thorough. In particular, the audit trail provided evidence that the extensive programme of approvals associated with the transition to the new 4-year curriculum is being conducted scrupulously and is serving the University well.

Maintaining academic standards through monitoring and review

- 2.11 The 2010 QAC Quality Audit recommended that HKUST streamline the requirements for annual programme reports to ensure greater focus, more consistent use of data and more critical reflection leading to action plans with accountabilities and timeframes. Another recommendation required HKUST to implement periodic reviews of all taught programmes, with defined frequency, terms of reference and requirements for action and follow up on review recommendations. In considering this aspect of HKUST's arrangements for maintaining academic standards, the Audit Panel therefore revisited the original 2010 report together with the Progress Report produced by the University in May 2012. They also accessed online guidance and templates for annual reports and periodic reviews and discussed the process and impact of annual reports, periodic reviews and external professional accreditation events with a range of senior managers, teaching staff, academic support staff and external stakeholders. In addition, the Audit Panel requested and examined a range of reports arising from all levels of the institution as part of an audit trail.
- 2.12 HKUST states that the principal responsibility for routine monitoring and review of the delivered quality of teaching and learning sits with Departments/Divisions, guided by the experience and expertise of international faculty. Evaluation is supported by the analysis of data relating to intake quality, student progress and performance, and student feedback on courses and programmes. These regular maintenance exercises at local level feed into several operations with institution-wide significance including: annual school reports; periodic reviews; external professional accreditations and the triennial Academic Development Proposal (ADP) submission to the UGC.

Annual school reports

- 2.13 HKUST regards the annual reporting exercise as the backbone of the University's monitoring of quality assurance practices and educational quality. It is seen as a source of improvement in teaching and learning by encouraging an evidence-based, reflective and forward-looking review of programmes and the quality of the student learning experience, and the sharing of good practice.

- 2.14 The process of annual reporting has been refined over several years and is now tailored to the particular requirements of each School, while retaining common elements. Senate requires annual reporting on teaching and learning from each Department/Division. This is initially aggregated to School level and then evaluated by CTLQ. Action items are identified and follow up occurs. CTLQ discusses and disseminates good practice.
- 2.15 The Audit Panel found evidence of a data-driven yet reflective reporting process in operation at HKUST, which commences in the Schools and progresses through to Senate. Examples of good practice from across the University are then shared by Senate and CTLQ for quality improvement purposes. The Audit Panel found evidence of several examples of improvements in teaching and learning at School level as a result of this critical self-reflection.
- 2.16 The Audit Panel concluded that processes and procedures for annual school reports are well developed, widely understood and intelligently employed at HKUST and commends the University for establishing a comprehensive and integrated annual reporting framework on learning and teaching which has been embraced by all levels of the University and leads to timely reporting of outcomes and shared understanding of good practice.

Periodic reviews

- 2.17 Periodic review of educational programmes is linked, at institutional level, to the triennial academic development planning process of the UGC. Periodic reviews of Departments/Divisions are conducted at least every five years. HKUST has addressed the 2010 QAC recommendation to implement periodic reviews of programmes through the use of external accreditation mechanisms, internal annual reporting, and, by invitation, the visits of notable international peer reviewers who can confirm broad equivalency of academic standards and offer advice on areas requiring improvement.
- 2.18 Since its foundation HKUST has utilised advisory committees which include members of the community and employers, particularly in the subject areas of Engineering and Business. Such external advice remains a feature of departmental, cross-disciplinary committees and these bodies are increasingly being employed to review educational programmes. During the audit visit, it became apparent that, for Engineering and Business and Management this form of employer engagement takes place in the context of external professional accreditation. In the Schools of Science and Humanities and Social Science, external advice is sought via periodic international peer review rather than community and employer advisory committees. In the School of Science, for example, periodic review consists of a visit by one or more external Undergraduate Education Advising (UGEA) subject specialists, to evaluate the work of a particular Department/Division. The resulting report

containing recommendations from UGEA is received by the School Quality Assurance Committee which also monitors implementation of the associated action plan. A similar system of inviting advice from visiting faculty occurs in the School of Humanities and Social Science and the Interdisciplinary Programs Office (IPO).

- 2.19 External reference points for academic standards of programmes can also include employment success and employer feedback. Graduate outcomes at HKUST demonstrate high rates of employment and progression to further study. The Audit Panel sought information directly from employers who reported on graduates positively.

External accreditation

- 2.20 The School of Engineering and the School of Business and Management principally rely on external global professional accreditation processes to ensure academic standards are maintained. In the School of Engineering, undergraduate programmes are accredited by the Hong Kong Institution of Engineers which forms part of the Washington Accord. These programmes underwent provisional accreditation based, for the first time, on an outcomes based orientation. A follow-up visit will take place in 2015 and thereafter every five years. The Association to Advance Collegiate Schools of Business provides accreditation for the undergraduate, master's and doctoral degree programmes in business at HKUST. This accreditation was completed in January 2014 and follow-up accreditations occur every five years. For these disciplines, therefore, quality and standards are regularly assessed through these mechanisms.
- 2.21 To complement these external processes, HKUST has, following the 2010 QAC Audit, established a process of external periodic review for its taught programmes. The Audit Panel noted that developments in periodic review have been largely focused on undergraduate programmes. Although periodic review for quality enhancement of taught postgraduate programmes has been under discussion for some time, it was not until 2014 that a process was piloted and a 5-year schedule of reviews established.
- 2.22 The Audit Panel concluded that HKUST has developed and implemented an effective process of periodic review for its undergraduate provision which invites external peer assessment of the University's academic standards and practices, providing advice and recommendations to the subject areas. Taught postgraduate provision has not kept pace with undergraduate provision in this respect, however. The Audit Panel therefore affirms the steps being taken by HKUST to implement periodic review of all taught postgraduate programmes alongside undergraduate programmes as part of the quality improvement process.

3. THE QUALITY OF LEARNING OPPORTUNITIES

- 3.1 HKUST regards the provision of a high quality education as its most important mission. It aspires to offer breadth and depth of learning via School-based undergraduate programmes and strong postgraduate programmes, providing a holistic education including out-of-class activities. The University has an established strategy for teaching and learning which embraces undergraduate, taught postgraduate and postgraduate research students. It is predicated on the following key themes: establishment of a scholar-teacher culture; innovative approaches to teaching, including e-learning; completion of the transition to the 4-year undergraduate degree; extending the range of additional experiences for students; greater opportunities for international exchanges and a diverse campus culture; and opportunities for research postgraduate students to prepare for professional careers in a global context.
- 3.2 Schools carry the primary responsibility for the quality assurance of educational programmes, while Departments/Divisions are responsible for the quality of delivery.
- 3.3 In order to establish how effectively HKUST's strategic approach is working in practice, the Audit Panel scrutinised relevant documentation including *inter alia* the critical self-review (2012); the ADP submission (2012-15) to the UGC; the CTLQ annual report 2013-14; sampled sections of annual school reports; guidelines for performance evaluation and sample individual faculty performance appraisals; and data including evaluations of faculty development workshops provided by the Center for Enhanced Learning and Teaching (CELT). Discussions were held with a wide range of students, including undergraduates, taught postgraduates and research postgraduates; with senior managers including deans and heads of department/division; with academic staff involved in delivery of taught programmes and supervision of postgraduate research students; and with academic support staff including those directly supporting student learning such as library and student affairs staff and those providing faculty development.

Completion of the transition to the 4-year curriculum including the core curriculum

- 3.4 HKUST has adopted a tri-modal educational framework for its new 4-year undergraduate degree. The three components consist of the established disciplinary curriculum; accelerated courses with more challenging content and flexible interdisciplinary opportunities; and a wide range of experiential learning courses. Senior staff advised the Audit Panel that the learning environment for the new 4-year curriculum requires a particular set of characteristics. HKUST aims to make it as individually accommodating for students as possible, by including within it a dynamic personal mentoring

relationship between faculty and students. The holistic curriculum is designed to increase students' opportunities to experiment, helping them to resist conservatism and take advantage of internationalism. In this way HKUST hopes to liberate students to find the question rather than repeat the answers.

- 3.5 HKUST has chosen to capitalise on the opportunity provided by the requirement to implement the 4-year undergraduate degree by effecting several other significant changes in curriculum design. As an integral part of revision and re-approval, majors and minors moved from norm-referenced to criterion-referenced assessment, which entails the articulation of programme and course learning outcomes. (Further discussion of this transition can be found below under Student Achievement at paragraphs 4.3 - 4.12).
- 3.6 The ABC LIVE statement has framed the revised majors and the development of graduate attributes through the Common Core (ABC LIVE is a frequently used acronym at HKUST, which refers to **a**cademic excellence, **b**readth, **c**ompetencies, **l**eadership, **i**nternational, **v**ision and **e**thical standards). Students can also acquire the ABC LIVE graduate attributes via such activities as internships, student exchanges, undergraduate research opportunities, international engineering and business case competitions, and Technology Meets Art.
- 3.7 In addition HKUST has introduced curriculum design requirements for majors such as capstone units; an emphasis on higher order learning including critical thinking, problem-solving and case-based learning; and the introduction of e-learning strategies. Interdisciplinary majors, such as Environmental Sciences, and minors, like Entrepreneurship, have been developed. To complement these features, emphasis has been placed upon co-curricular activities and exchange opportunities for students, which are discussed below at sections 7a and 7b.
- 3.8 The Common Core units, which operate alongside the disciplinary majors, require each student to complete 36 credits that develop breadth in intellectual development and competence in communication and quantitative reasoning. At the time of the audit visit, 291 courses had been reviewed for qualification in the Common Core. Student survey responses show a positive trend over 20 years in overall ratings of courses and teachers but their evaluation of their achievement of learning goals in Common Core courses appears less enthusiastic. However, there is a slight improving trend in the performance indices and students whom the Audit Panel met were generally positive and aware that the approach is still under development.
- 3.9 A host of projects have been developed under the blended learning initiative and the drive to broaden students' educational experience. These include partnership with Coursera and edX to produce Massive Open Online Courses (MOOCs), the Student Innovation for Global Health Technology, HKUST

Connect, and the REDbird Award Program. Additional funding is available to students to support out-of-class learning.

- 3.10 HKUST's flagship programme Undergraduate Research Opportunities Program (UROP) is enabling about 150 faculty and 400 students (nearly 20% of the cohort) to participate in research options as part of their major. Students rate their achievement of UROP learning outcomes around 3.5 on a scale of 1 to 5. About 750 students go on exchange every year. Most of them find the experience rewarding or very rewarding.
- 3.11 The first cohort of students enrolled in 4-year degrees in 2012 and three cohorts are now pursuing these programmes. At the time of the audit visit, HKUST was monitoring the implementation of the 4-year undergraduate degree through the annual school reporting system, aware that full periodic review would be premature. Nevertheless certain steps have already been taken, including the establishment of advisory boards for the majors offered by the School of Humanities and Social Science and the IPO as discussed above (see paragraph 2.18). A full review is scheduled for 2016 when the first cohort will have completed. The outcome of these new degrees is yet to be tested in the graduate environment.
- 3.12 CELT, the Center for Language Education, and the Library undertake formal evaluation of key learning outcomes for students including generic skills. Tests of critical thinking, information literacy, and language proficiency are conducted and students show gains over the period of their study in the generic skills of critical thinking, information literacy, and English language proficiency. Student surveys of achievement and satisfaction are discussed below (see paragraph 3.38).
- 3.13 The Audit Panel concluded that HKUST has responded to the requirement for a 4-year undergraduate degree enthusiastically and has taken the opportunity the reform brings to introduce additional contemporary educational practices which enhance the learning opportunities, experience and employability of students. Substantial progress has been made in a relatively short time. The Audit Panel therefore commends HKUST for its creative, broad-based and detailed approach to implementing the 4-year degree programme and the transformative effect of the new tri-modal approach to undergraduate education that the University has adopted.

E-Learning

- 3.14 The 2010 QAC Audit Report recommended that HKUST develop an e-learning strategy based on a clearly articulated pedagogy for the use of technology in achieving desired educational outcomes in specific educational contexts. HKUST responded by launching a broad online and blended learning initiative headed by the Executive Vice-President and Provost

(EVPP). The redevelopment of teaching approaches to enhance student engagement is described as an explicit goal within this initiative.

- 3.15 HKUST's rationale for implementing blended learning is to enhance interactivity. Students can view material prior to class allowing more class time for interactive learning. HKUST believes that the use of blended learning and self-access approaches in teaching have proven effective and are well received by students. Incoming exchange students have found it helpful in filling gaps in their learning. Academic support staff consider that blended learning is very demanding of students, but offers rich insights into the learning patterns of individual students. There has been a degree of resistance to blended learning on the part of faculty, a minority of whom consider it 'too demanding' or 'interference with the freedom of faculty to teach'. Senior staff visit departments to encourage the transition to blended learning.
- 3.16 The University has predominantly approached e-learning through the implementation of technology-enhanced teaching spaces and the development of five MOOCs as the first university in Asia to form a partnership with Coursera and edX. HKUST has budgeted for an investment of 250,000 HKD in the development of each blended learning course. As part of a pilot programme, each academic unit has pledged to develop at least one blended learning course, amounting to a total of 20 university-wide.
- 3.17 Students' digital-media literacy is being developed in the Learning Commons. Wifi has been deployed across the University and Canvas has been adopted as the new learning management system (LMS). In addition, IT Services have upgraded two classrooms to support blended learning delivery. The Publishing Technology Center provides lecture capture and content development for MOOCs.
- 3.18 While senior staff at HKUST were committed to the use of e-learning to bridge knowledge for incoming students and to maximise class time for existing students, the strategic underpinning for the approach to blended learning was not appreciated across the University. Senior staff with responsibility for quality assurance indicated that e-learning is still at a relatively early stage of development. Limited access to student course evaluation summaries and to aggregated exit survey data for students made it difficult for the Audit Panel to judge the effectiveness of the e-learning strategy from that perspective.
- 3.19 The Audit Panel recognises that HKUST has established a diversified set of digitally supported projects to encourage student engagement in learning and to enrich students' learning experiences. However, the synergy between these innovations and traditional classroom-based curriculum development has not been clearly articulated. While the University has mentioned operational targets such as the increasing number of MOOCs for some of these

programmes, it is unclear how the success of these programmes would be defined and evaluated for future planning.

- 3.20 The Audit Panel concluded that HKUST has not progressed sufficiently towards the development and implementation of a clearly articulated pedagogy for the use of technology. While various papers have been presented and discussions have been held, there is little evidence of a comprehensive, systematic and contemporary e-learning strategy in place at HKUST. In essence the approach has been two-fold: first, to ensure the availability of technology to support learning and teaching, such as a wireless campus; second, to construct and utilise MOOCs in a way that adds to an existing course in a small number of courses across each of the Schools. The strategy remains at a stage where early adopters can pursue an interest in information and communications technology enhancement of the learning environment. While CELT provides courses on topics such as the new LMS, MOOCs and mobile learning, it does so in the absence of a widely and well understood overall strategic approach to how e-learning will be used pedagogically at HKUST. Therefore the Audit Panel recommends that HKUST enunciate and disseminate more explicitly and effectively the pedagogical underpinning of its e-learning strategy and expedite its implementation, integrating blended learning projects within the regular curriculum development process.

Faculty development

- 3.21 HKUST's Strategic Plan, indicates the broad efforts the institution is making to promote a scholar-teacher culture and enhance course delivery. The role that teachers play in the creation of high quality learning experiences for students is recognised in a number of ways, not least faculty and staff development, including leadership training for academic and non-academic managers and high potential employees. A closely related priority is the development of a flexible and internationally-competitive faculty compensation system to acknowledge and reward teaching and mentoring excellence.
- 3.22 CELT which has about 20 staff including four to five senior professionals, provides professional development for faculty in a physical centre. CELT orientation sessions ensure new faculty are familiar with the goals and values of ABC LIVE. The Innovation in Teaching and Learning programme funds some 20 competitively selected teaching development projects at any given time. In this programme, online and blended learning projects, including MOOCs, are encouraged. Information on Teaching Development Grant is disseminated on the CELT website. The CTLQ Secretariat has established a good practice archive to encourage this process.

- 3.23 Issues for professional development for educators in undergraduate and taught postgraduate courses are derived from the annual school reporting system as well as from student surveys. In response, HKUST supports faculty with professional development programmes, workshops, and seminars on educational topics and pedagogical theory and techniques.
- 3.24 In response to a recommendation made by the 2010 QAC Quality Audit, Senate approved systematic guidelines for evaluation of faculty in their educational role, including use of a broadened range of evidence of performance and salary adjustment for Annual Merit Review. Student surveys on delivery of courses and feedback on teaching quality are used as part of the evaluation of faculty performance.
- 3.25 A further recommendation made by the 2010 QAC Quality Audit required HKUST to apply a consistent approach to assessing teaching performance in the annual performance appraisals of faculty at all levels. In response, the University has produced *Guidelines for Faculty Performance Assessment* which are provided in the *Academic Personnel Policy and Procedure Manual* and include a statement describing excellent performance in teaching. Faculty provide evidence of their teaching as an integral part of both appointment and promotion processes. The system allows for promotion and reward based entirely on the notion of a scholar-teacher, up to professorial level and this appears to be well received throughout the University. The framework has only been in place for three years so no tenure-track faculty, appointed under this system, have yet been promoted on this basis.
- 3.26 The Audit Panel commends HKUST's broad range of provision to enhance faculty development by Schools and Departments and by CELT staff, together with its use of a range of evidence of teaching effectiveness in recruiting and rewarding faculty.

Teaching Assistants

- 3.27 Research postgraduate students are routinely engaged as Teaching Assistants (TAs). HKUST has strengthened the requirements for TAs to attend training sessions offered by CELT on teaching skills. The University also requires an assessment of the spoken English proficiency of all new research postgraduate students, which is overseen by the Office of Postgraduate Studies (PGSO), working closely with the Center for Language Education. The PGSO, in collaboration with Schools and the IPO, recently introduced a Professional Development Course for all new research postgraduate students. Students are required to complete one to two credits of workshops or classes, depending on the requirements of their School/IPO.
- 3.28 Schools, Departments/Divisions and CELT coordinate efforts to strengthen the TA coordinators' network, which supports and organises the work of TAs

and endeavours to improve their teaching skills.

- 3.29 Student surveys on the delivery of courses and feedback on the quality of TAs are used as part of the evaluation of the performance of TAs. The Audit Panel heard reports that the teaching ability and standards of English competency among TAs are variable and that improvements are required to safeguard the quality of the student learning experience. The Audit Panel therefore affirms the actions being taken by HKUST to build English competence and provide training in teaching skills for all new research postgraduate students, and to enhance their transferable skills through the introduction of a Professional Development Course, which is a required course for all research postgraduate students.

Student support and guidance

- 3.30 HKUST's commitment to providing a learning environment for students that is as individually accommodating as possible and fosters a personal mentoring relationship between faculty and students makes additional demands on student support and guidance. Instead of choosing their major at enrolment, students now make this decision at the end of their first year of study. To assist in this process, students now receive enhanced advice and mentoring regularly throughout their first year and complete foundation courses before being admitted to majors. Peer advising and mentoring are also encouraged.
- 3.31 In addition, students are provided with a range of support to assist their academic progress. In particular, discipline-based support for learning includes the Center for Engineering Education Innovation; Math Support Center; Language Commons; and School of Science's Center for Peer Instruction and Assessment. The Learning Commons in the Library offers an information literacy programme, research support, and activities designed to boost other generic skills.
- 3.32 An electronic tracking system has been deployed to monitor student progress with their studies, their engagement with advisors and participation in activities within the co-curriculum. The Audit Panel was informed that faculty enter advising sessions into this tracking system, and that students are able to enter co-curricular activities into the same database. Faculty whom the Audit Panel met were not yet making full use of the tracking system in advising students. Some teaching staff suggested that the system could be developed further to integrate all sources of student data in a single location. Senior staff confirmed that the tracking system is implemented variously in the four Schools.
- 3.33 Most of the students interviewed during the audit visit were either unaware of the tracking system and its purposes altogether or were not using the system regularly. Very few were using it to track out-of-class activities. Students

perceived that faculty are unlikely to be aware of much of their out-of-class activities.

- 3.34 The Audit Panel commends HKUST for implementing a tracking system designed to monitor the whole student experience, including progress through the curriculum, engagement with advisors, and participation in the co-curriculum. However, it recommends that HKUST consider what additional communication and training in the system is needed to apprise students and faculty of its purposes and to clarify the ways in which both parties are required to make use of the system.

The student voice

- 3.35 The 2010 QAC Audit Report observed the need for better utilisation of student feedback to improve practice. There is clear evidence that, in the intervening time, HKUST has integrated student feedback into a range of activities including annual assessment of faculty performance. CTLQ now requires that annual reports on teaching and learning quality from Schools and academic-support units report specifically on feedback to students in response to their suggestions for improvement.
- 3.36 The establishment of staff-student liaison committees and student focus groups assists in providing additional feedback alongside more typical surveys. Focus groups have been held with undergraduate, taught postgraduate and research postgraduate students as part of HKUST's critical self-review.
- 3.37 CELT also monitors student satisfaction and proficiency in the learning environment in a range of ways. Survey results are monitored through annual reporting procedures. Results are presented to meetings of senior academic staff and in workshops for Schools and are used in periodic reviews of programmes.
- 3.38 HKUST provides high level data demonstrating that course and teaching quality have improved steadily over the past 20 years. Data examined show a small improvement in students' generic skills between first and final years. Students' survey responses to items evaluating their achievement of learning goals in Common Core courses also indicate increasing agreement from 2012 to 2014 that the courses are effective in developing their learning related to these goals. Students report that exchange experiences are rewarding. With the exception of these data, the Audit Panel received limited summary data on student responses to questionnaire instruments or individual questionnaire items. Consequently, they cannot substantiate with evidence the status of any improvement in students' ratings of advising or other elements of the learning experience.

4. STUDENT ACHIEVEMENT

- 4.1 As part of its aspiration to be a world class university, HKUST aims to teach its students to think critically, to identify and resolve problems, develop skills for future employment and mould them to become socially responsible citizens. HKUST states that the academic standard of student achievement in courses is underpinned by recruitment of high quality faculty. At the individual level, student achievement is measured through the assessment of work, against the academic standards and performance standards set for programmes and courses. At institutional level, student achievement is measured through the success of graduates, either within the workforce or in further study.
- 4.2 The Audit Panel examined both of these aspects of student achievement by studying documentation relating to the transition to outcome-based education and from norm-referenced to criterion-referenced assessment; and by reading the minutes and papers of University committees and offices responsible for overseeing these areas: CTLQ, CELT, Career Center, and Student Affairs Office. The Audit Panel also accessed the online *QAF* and *Assessment Guidelines for Faculty, Schools/Departments and Students* and took note of the results of available survey data such as graduate destinations and alumni feedback. In addition, the Audit Panel met with a range of students and alumni; senior managers with responsibility for monitoring trends in student achievement at institutional level; academic staff with responsibility for setting and conducting assessment; academic support staff including those responsible for conducting student surveys and those providing staff development courses for faculty; and employers.

Outcome-based education

- 4.3 The 2010 QAC Quality Audit recommended that the HKUST broaden its assessment policy with regard to the number, timing and scale of assessment tasks and the nature of feedback to students on their performance relative to course Intended Learning Outcomes (ILOs). The 2014 critical self-review reported that the CTLQ Secretariat had responded by undertaking a broad scan of international good practice as part of ongoing enhancement of University policy.
- 4.4 In response to the requirements of the government and in line with internationally recognised best practice in assessment, HKUST used the opportunity provided by the transition to the 4-year undergraduate degree to move to a model of outcome-based education. This entailed articulating statements of ILOs for all programmes and courses in the new curriculum. This process, which is being driven at School level, brings HKUST in line with good practice internationally. Within the School of Science, which is not subject to external accreditation requirements, Departments/Divisions are

required to develop and produce ILOs and assessment plans as part of the periodic review procedure. CELT provides some assistance to faculty, though Schools also source external disciplinary assistance to develop ILO statements and design outcome-based assessments.

- 4.5 HKUST states that external bodies accrediting Engineering majors and programmes within Business and Management have long since insisted upon the use of ILOs. Indeed, HKUST was the first Hong Kong institution to develop ILOs with the Hong Kong Institution of Engineers. Despite these early developments, UGC's promotion of outcome-based approaches in student learning in the UGC sector and the 2010 recommendation concerning an assessment policy based, inter alia, on course ILOs, HKUST is only now extending statements of ILOs across the institution. The University recognises that there is still progress to be made, notably in respect of taught postgraduate programmes. This is further discussed under Postgraduate Provision below (see p.26).

Criterion-based assessment

- 4.6 In parallel with the production of ILO statements for each course and programme, HKUST has moved from a norm-referenced to a criterion-based system for assessing student work and allocating grades to indicate how well each individual student has performed. HKUST states clearly that it is University policy that course grades should reflect the level of student achievement of ILOs. However in order to safeguard the institution against grade inflation that is unrelated to an authentic improvement in student performance, HKUST also provides guideline bands for the distribution of grades based on the University's past experience. Under the QAF, Heads of Department/Division are responsible for endorsing course grades awarded by individual faculty, subject to University guidelines for the approval process and broad grade descriptors, and in light of the University's experience with grade distributions. Staff involved in conducting assessment and senior staff responsible for monitoring student achievement were all aware that grade distribution bands now serve as a check and balance to assist staff in making the transition from one system to the other.
- 4.7 To assist in this process, extensive work has gone into the development of grade descriptors in the form of assessment rubrics. Graduation grade average is determined by course grades. HKUST states it is broadly satisfied with the transition to criterion-referenced assessment to date and is forthcoming about the challenges that this entails. In order to support academic staff, the University has produced and distributed more user-friendly information on assessment, including regulatory requirements and advice about best practice. For example, while preparing for the current QAC audit, in May 2014, CTLQ endorsed online *Assessment Guidelines for Faculty, Schools/Departments and Students*.

- 4.8 The 2010 QAC Panel recommended that CUS take a stronger role in monitoring distribution of grades and awards that fell outside HKUST's guidelines on percentage bands. Since the 2010 audit, HKUST has noted a trend to students earning grades above the historical distribution guidelines. Faculty have disparate views on the cause of this trend. The University has engaged in a range of detailed and comprehensive investigations including benchmarking internationally to identify the reasons for this. The Audit Panel found much evidence of the efforts HKUST has been making to understand and engage with the philosophy of outcome-based education and balance this with debate about the role of grade distribution bands. The level of scholarship in this discussion is evident and the Audit Panel considers this to be a healthy sign.
- 4.9 As part of this discussion and through formal consideration in committees, faculty were consulted on the merit and usefulness of assessment rubrics. Faculty are generally comfortable and supportive of the grade descriptors but report they need time to adapt their assessment strategies. HKUST is encouraged to continue to engage with faculty at all levels to develop a deep understanding of its approach to assessment so that pedagogy and curriculum can continue to be enhanced.
- 4.10 As a further result of this discussion, comparative analysis of course grades for inbound and outbound exchange students is conducted routinely. Data demonstrate that HKUST students perform nearly as well at excellent UK, USA and Canadian universities as they do at home, though the outbound load is slightly less. The Audit Panel formed the view that HKUST is grappling with the complexity around the accurate construction of ILOs for undergraduate majors, and the cultural and educational challenge in moving faculty towards criterion-based and away from norm-referenced assessment. Given the 2010 QAC Quality Audit Report recommendations to develop policy towards this, the panel considers the implementation of this to be still at the early stages for HKUST and encourages continued active leadership in this area.
- 4.11 The Audit Panel found evidence of rigorous self-reflective practice in the way that HKUST is grappling with these multi-faceted and complex issues at the heart of student achievement. The use of external data to benchmark institutional performance and the readiness to acknowledge to the Audit Panel the need for further improvement is a sign of an embedded culture of critical self-review. The University is encouraged to consider replicating this approach should it identify other issues as a result of data analysis.
- 4.12 The Audit Panel concluded that HKUST has taken strong action to address the 2010 QAC Quality Audit recommendation regarding the role of CUS in grade distribution and commends HKUST for its rigorous and scholarly approach to

quality improvement and the maintenance of standards in grades as a result of this oversight.

Employability and employer feedback

- 4.13 At institutional level graduate destinations can also serve as indicators of student achievement. The Audit Panel found strong results for HKUST graduates in respect of exit qualification, employment and progression to further study. Internationally accredited degree programmes confer global recognition of graduate achievement against international professional standards. Employers whom the Audit Panel met reported that HKUST graduates are of high quality and are generally sought-after. The Audit Panel commends the University on the impressive standard of achievement of graduate employment and the proportion of its graduates pursuing further study.
- 4.14 The graduate competencies reported via alumni surveys vary from qualitative skills (>80% reporting good or very good) to leadership skills (> 50% reporting good or very good). Other sources of information on graduate achievement include the extensive network of informal relationships that the Career Center has forged with employers.
- 4.15 HKUST has conducted broad surveys of employers in the past but has discontinued this method of data collection in favour of working with employers who have direct knowledge of its graduates and are committed to providing input to the University, which the University considers to be more effective. Given HKUST's stated mission to assist in the economic and social development of Hong Kong, the Audit Panel is concerned that the decision to discontinue the regular and systematic collection of and response to larger scale quantitative data from employers and other independent external stakeholders may not be in the best interest of future graduates. The Audit Panel therefore recommends that the University review and revise, as appropriate, its strategy for gathering and responding to employer feedback to strengthen further the tri-modal undergraduate and postgraduate learning environment, student achievement and curricula of all programmes.

5. QUALITY ENHANCEMENT

- 5.1 HKUST states that enhancing the quality of teaching and learning is the fundamental purpose of policies and arrangements for quality assurance. Quality enhancement is achieved through establishing a strategy and goals for educational programmes and students' learning experience, ensuring that the quality loop linking action, implementation and evaluation is closed, and providing the policy framework and support necessary to promote innovation and improvement.

- 5.2 The 2010 QAC Quality Audit Report affirmed the work of CTLQ to disseminate information about good practice and encouraged the Committee to develop a strategy for informing the University community about successful innovations in teaching and learning. The 2010 Report also included the recommendation that HKUST streamline its requirements for annual school reports to ensure greater focus, more consistent use of data, and more critical reflection leading to action plans with accountabilities and timeframes.
- 5.3 The Audit Panel reviewed the documentation submitted by the University including the Progress Report, and documents provided for the Audit Trails, such as examples of school and departmental annual reports. Meetings were held with key HKUST senior administrators, including the new Director of Planning and Institutional Research.
- 5.4 Director of Planning and Institutional Research has been named and a new strategic plan with measurable indicators has been developed; unit plans are aligned, and budgeting is connected to strategic objectives. Departments/Divisions submit annual reports, which are summarised at School level and submitted to CTLQ. The reports contain recommendations for improvement, and each annual report must address the previous year's recommendations. Since the 2010 audit, a section of the annual report has been added about follow-up on student feedback.
- 5.5 Annual teaching and learning reports show increased use of evidence and follow-up on students' feedback. As the backbone of the University's quality assurance processes, they show a growing commitment to critical reflection and to 'closing the quality loop'. Separately, Council receives reports and data on strategic goals and outcomes. The template for annual teaching and learning reports does not provide a clear linkage to the University's overarching strategic purposes or stipulate a common framework for the evaluation of data reported elsewhere, such as in operational performance reports to Council. As a result, the Audit Panel formed the view that the range of reports manifest an *ad hoc* approach and fall short of meeting the 2010 QAC Audit Report's recommendation to focus on consistent use of data.
- 5.6 Examples of good practice in using evidence to improve student learning are placed on the HKUST website, and some of these examples are used by other Departments/Divisions as they determine their own plans for improvement for the coming year. Both faculty and students interviewed by the Audit Panel were able to provide numerous examples of actions taken in response to student feedback.
- 5.7 The 2010 QAC Quality Audit Report noted that data held by HKUST were not well exploited, had not been interpreted and were difficult to interrogate. The Audit Panel was not always provided with complete, extant reports of

data, presenting the overall findings of data analysis required for external quality assurance purposes. The Audit Panel also noted that some HKUST faculty are requesting access to more useable summary data, such as trends over a few years, data at individual course level and responses to open ended questions.

- 5.8 Following the 2010 QAC Quality Audit, HKUST has engaged in a range of benchmarking activity. The Panel examined progress in this area. Data from external sources, predominantly other local universities are regularly used to assess HKUST performance and HKUST would welcome more transparent sharing of data among these institutions. The Office of Planning and Institutional Research prepares benchmarked data for management and Council. The data compare a range of areas including admissions standards, number of students, employment rates. Council also examines staff data and data that are gathered within HKUST across the different Divisions. Minutes examined by the Panel indicate, for example a discussion on improving diversity of students without compromising quality of students.
- 5.9 More generally, there is reliance on peer review processes to inform benchmarking analysis though data-driven benchmarking is increasing. Peer review processes to assess standards of programmes are discussed in more detail below. The panel was advised that there are various forms of ‘natural benchmarking’ such as visits from and to other institutions; student exchanges; external advisors; the presence of faculty who graduated elsewhere in the world and through discipline-specific accreditation. HKUST notes that benchmarking information is now included in School annual strategy-budget exercises and the templates for Annual Reviews for Schools. The University considers that it has been helpful and consideration is being given to making benchmarking a more systematic component of the process.
- 5.10 The Audit Panel concluded that HKUST has responded positively to the previous QAC recommendation on benchmarking. While there is a heavy reliance on peer review and qualitative benchmarking, the University is aware of the importance of comparative performance and is increasingly making appropriate use of benchmarked quantitative data alongside qualitative benchmarking to achieve its goals. Data from external sources, predominantly other Hong Kong universities are regularly used to assess HKUST performance. Benchmarked data are reported and discussed at Council as part of performance metrics. Comparable data are gathered from other institutions through a range of mechanisms (peer review through UGEA and reviews as well as metrics such as grade distribution) to inform planning and to improve areas of concern. The Audit Panel therefore affirms the steps HKUST is taking to extend external benchmarking across all facets of the University, to routinely include data-based comparisons in addition to peer-review benchmarking.

6. POSTGRADUATE PROVISION

- 6.1 In its 2011-16 Strategic Plan, HKUST accentuates the holistic development of both undergraduate and postgraduate students, to equip them to become academic and business leaders locally and globally. The University also sets strategic objectives on education that includes the promotion of a scholar-teacher culture for its faculty with emphasis on both teaching and research and a desire to give research postgraduate students a broader skill set. There are also goals to improve the research environment for students with more interdisciplinary work, linkage to industry, and global emphases.
- 6.2 In order to consider how effectively HKUST establishes and maintains the quality of its research and taught postgraduate programmes with reference to its mission and purposes, the Audit Panel accessed relevant sections of the QAF. During the audit visit, the Audit Panel met with research postgraduate students, taught postgraduate students, research supervisors, programme directors, and members of key University committees and University officers who are responsible for postgraduate provision.

Research postgraduate provision

- 6.3 Quality of research supervision is key to success of any research programme. HKUST places great value on hiring academic staff with high research performance or potential and prides itself on the quality of its faculty and their research. High calibre researchers are recruited internationally and the institution describes itself as a major force in research and education in the region and globally.
- 6.4 Most research students are part of research teams and it is within this environment that research students learn. Research students are expected to complete annual progress reports. When progress is insufficient or difficulties arise in the student-supervisor relationship, problems are usually managed locally and informally, though they can be escalated formally within the School if necessary.
- 6.5 Working as a TA is considered part of the research postgraduate student's education. All new TAs are required to fulfil a training programme delivered by CELT, by attending all mandatory sessions and workshops to become acquainted with hands-on teaching skills applicable to various teaching roles. In addition, since 2013-14, all research postgraduate students have been required to attend a Professional Development Course. Modules include research ethics, career development, entrepreneurship and research and communication skills. Furthermore, the Entrepreneurship Center provides students with opportunities to gain experience with knowledge transfer and commercialisation. Travel grants are available to encourage international academic travel.

- 6.6 In spite of the intense competition for the UGC research student quota, the University has enjoyed growth in its research student numbers and has maintained its ratio of research students at international standards. The University currently has 1 700 research postgraduate students. Several new research education programmes have recently been established. About 75%-85% of PhD graduates take positions in the education sector on graduation.
- 6.7 The Audit Panel found no evidence of planned, strategic, University-wide development of supervisory skills. Faculty develop their skills as supervisors by working alongside or in collaboration with colleagues or bring them with them from previous employment in other institutions. Junior faculty are usually assigned at least one senior member of faculty as mentor, providing advice and guidance on professional development, including teaching, research and supervision of postgraduate students. According to supervisors whom the Audit Panel met, dissemination of good practice in research student supervision tends to rely on informal channels and optional workshops. The Audit Panel was advised that, should a supervisor not discharge his/her responsibilities adequately, future financial support for research and allocation of research students would be in jeopardy, though this occurs only rarely.
- 6.8 The Audit Panel commends HKUST for the actions it has taken to establish and foster a rich research environment that provides strong local support for the development of students as future researchers. In line with its aspirations toward teaching excellence, the Audit Panel recommends HKUST consider how it might further enhance the learning environment of research postgraduate students through systematic development and appraisal of faculty supervisory abilities.

Taught postgraduate provision

- 6.9 There are 2 500 taught postgraduate students at HKUST studying on more than 30 self-funded programmes which are mostly delivered by full-time faculty. While the MBA and EMBA programmes have always emphasised recruiting students globally, more recently non-local recruitment has become a major source of growth for the rest of the portfolio.
- 6.10 Senior managers assured the Audit Panel that the portfolio of taught postgraduate programmes is of strategic importance to HKUST. They described the purpose of the portfolio as being to provide advanced training in professional disciplines for a knowledge-based society; to advance and expand HKUST's mission; to meet the tested demands and needs of society in Hong Kong; and to bring in new local part-time professional students who can form part of HKUST's link between industry and the research community. Many of HKUST's programmes are highly selective and all are subjected to as rigorous a process of programme approval as any undergraduate programme.

- 6.11 In considering the quality of HKUST's taught postgraduate programmes, the Audit Panel interviewed senior managers, teaching staff and academic support staff about this aspect of HKUST's provision and spoke to a range of taught postgraduate students. Relevant documentation was scrutinised; this included both material specifically produced for taught postgraduate programmes such as dedicated sections of the QAF and general policies and procedures that apply to all taught programmes or the entirety of HKUST's provision, such as the strategic plan.
- 6.12 HKUST's current strategic plan records the institution's commitment to broadening the overall experience of HKUST's postgraduate students - 'in particular our research postgraduate students'. The priority accorded to research postgraduate students was reflected in many of the discussions held during the institutional briefing and audit visit. Questions about postgraduate students in general were frequently interpreted by interviewees as relating only to postgraduate research students.
- 6.13 The taught MBA and EMBA programmes have consistently received high international rankings and HKUST has demonstrated a clear understanding of the needs of these students and their learning. It was less apparent that the same attention had historically been given to other taught postgraduate programmes.
- 6.14 In view of the growth in taught postgraduate programmes, a HKUST task force conducted a review of academic and related matters in relation to these programmes. The task force produced an action plan with timelines, which was submitted to the Deans. HKUST has piloted reviews of four taught postgraduate programmes in 2014 and has planned a five year schedule of review.
- 6.15 The Audit Panel also noted that, while extensive work had been put into the adoption of outcome-based education at undergraduate level, this approach has not yet been systematically applied to the taught postgraduate experience. The Audit Panel therefore affirms the decision taken by HKUST in a recent review to roll out quality assurance processes available to undergraduate programmes to taught postgraduate programmes.
- 6.16 The strategic vision for the development of the taught postgraduate portfolio articulated to the Audit Panel by senior managers was not widely or well understood across the University. In light of the work underway at undergraduate level, and the aspirations of HKUST, the Audit Panel concluded that there is an urgent need to consider the taught postgraduate learning environments across all disciplines in a similar manner. Given the value that was accorded to this provision by senior managers, the Audit Panel therefore recommends that HKUST develop and promulgate a strategic vision

and strategic plan for taught postgraduate provision that can be embraced by the broader academic community.

7a. AUDIT THEME: ENHANCING THE STUDENT LEARNING EXPERIENCE

- 7.1 At the highest level of the organisation, HKUST is committed to enhancing the student experience through its 2011-16 Strategic Plan, which lists ‘innovative approach to teaching’ and ‘increasing the range and richness of learning experience’ as two of its six themes. (These six themes are slightly different from the five objectives found in the 2011-16 Strategic Plan downloaded from the site http://opir.ust.hk/internal/council_paper-strategic-plan.pdf). Other high level plans and reports, such as the e-learning Plan 2012, led by the EVPP, are available and assist in shaping HKUST tactics to improve the student experience.
- 7.2 Throughout the audit process the Audit Panel considered the student learning experience across all aspects of the enterprise. Much relevant detail precedes this section of the report.
- 7.3 HKUST has approached the student learning experience in a comprehensive way through the construction of both formal learning and informal learning opportunities. Since the last QAC audit, HKUST has added considerable resources to enhancing different aspects of the student experience through the implementation of its tri-modal model of education. This includes the establishment of the Dean of Students Office, additional research and international exchange opportunities, additional facilities on campus and more interactive formal learning. The Audit Panel found much evidence that the University continues to strive to provide additional opportunities for students and has set up funding to support teaching and learning development.
- 7.4 There is an established review and reporting schedule within HKUST, which gives the institution the opportunity to examine current practice and enhance where necessary. Administrative review and reporting operates alongside academic committee review and reporting. Students have opportunities to provide feedback on their experience through a range of mechanisms including surveys, committee membership and focus groups. The feedback is incorporated into reports and planning at Departmental/Divisional and School levels and there are clear examples of change that have resulted from this process.
- 7.5 The Audit Panel concluded that the University’s policies and procedures for enhancing the student learning experience are fit for purpose and noted the energy and commitment of HKUST to enhancing the student experience. Given HKUST’s devolved organisational structure, the university-wide ‘1-HKUST’ approach it is adopting requires cultural change, faculty

development and mechanisms that facilitate recognition and reward. These shifts are occurring but the changes are yet to be normalised and accepted across the entire institution. The Audit Panel noted variability in maturity of approach between Schools and a consequent inequality of opportunity for students. While this is to be expected at the developmental stage, HKUST will need to make continued efforts systematically to enhance the student experience across all parts of the institution.

7b. AUDIT THEME: GLOBAL ENGAGEMENTS: STRATEGIES AND CURRENT DEVELOPMENTS

7.6 The vision of HKUST is to be a leading University with significant international impact and strong local commitment. It aspires to be a world-class university at the cutting edge internationally in all targeted fields of pursuit. Since its establishment, HKUST states that it has been drawing students and faculty from all over the world and providing a bridge between east and west for scholarship and education. Its 2011-16 Strategic Plan emphasises the cultivation of deeper partnerships with selected global and Chinese partner institutions.

7.7 The Panel considered how HKUST pursues global engagements with reference to its mission, strategies, staff and student profile, international benchmarking, curriculum development, student recruitment and integration. During the institutional briefing and audit visit, the Audit Panel met staff with responsibility for the management and delivery of non-local provision. They also discussed issues such as cross-cultural awareness and competency, internationalisation of the curriculum, and campus life with local and international students, teaching and academic support staff and senior managers.

7.8 HKUST delivers part-time taught postgraduate (MBA) programmes in Mainland China and in Saudi Arabia. These are virtually identical to the programme delivered in Hong Kong with local adjustments made to accommodate variations in the intensity of the delivery modes. Some students meet once per week, others for intensive weekends, so class exercises are adjusted according to the teaching and learning context. The programmes are delivered by the same teaching team and students undertake the same assessment regime.

7.9 HKUST considers the diversity of its faculty and students naturally gives rise to the international character of its undergraduate curriculum. Around 80% of faculty employed by HKUST are non-local, representing 33 countries, though the global distribution is uneven. Around 45% of faculty derive from Mainland China and other Asian countries, 24% from North America, 8% from Europe and 2% from Australia and New Zealand. Many are recruited to HKUST following an extensive academic career elsewhere in the world.

Similarly, while 20% of undergraduates are international, only 23 of the 385 non-local students are from non-Asian countries and 90% of research students are from Hong Kong or Mainland China. HKUST believes that diversity is further secured by the University's openness to input from international peers and benchmarking of the curriculum as part of the process for programme approval.

- 7.10 As a consequence of HKUST's success in recruiting a diverse, international student body, cross-cultural integration has become a high priority. To foster cross-cultural awareness and sensitivity, a number of programmes have been established, with the Dean of Students taking the lead through the Global Student Programs Office. For example, local students are able to gain international learning experience through HKUST's international student-exchange programme while the international summer exchange programme enables international students to gain an insight into Asian culture. A range of international learning experiences are also available, including the international research opportunities programme; international service learning through community projects world-wide; internships particularly for Engineering students; entrepreneurial skills development particularly for Engineering and Business and Management students; international engineering and business case competitions, and Technology Meets Art. The percentage of undergraduates spending a term or more overseas has grown to 47% of the cohort; the number of internships has increased; and over 3 500 service learning placements are available each year.
- 7.11 This expanding and extensive range of opportunities provides students with mechanisms to enhance their global understanding and workplace readiness, while meeting the aspirations encapsulated by ABC LIVE. It was clear to the Audit Panel that students are responding very positively to these experiences.
- 7.12 The 2010 QAC Audit Report affirmed HKUST's continuing efforts to provide such opportunities. In the intervening period, much work has been done and this programme is now significant in both quantum and impact. Therefore the Audit Panel commends the substantial and successful efforts of HKUST to provide international service learning and exchange opportunities for its students. While HKUST acknowledges that opportunities vary depending on School, there was a clear commitment to ensure equivalent if not identical experiences and a desire to develop opportunities that transcended boundaries between Schools in line with the vision of '1-HKUST'. The Audit Panel encourages HKUST to press on in pursuit of these goals.
- 7.13 HKUST continues to enhance on-campus experiences for its students. Two new halls of residence have enabled more students to benefit from residential life. Living-learning communities have been established in residence halls and a range of active student societies exist on campus.

- 7.14 In conversation with the Audit Panel, students expressed their support for the vision of ‘1-HKUST’ and their desire for better connection between local and non-local students, with more events to unify the student body, and more cross-disciplinary social opportunities. The University is aware of the challenges of providing inclusive co-curricular experiences for a linguistically and culturally diverse community and is working actively to monitor and address concerns.
- 7.15 The Audit Panel found evidence that policies and procedures for global engagement are being successfully implemented and that HKUST is actively working to expand opportunities for students. There are a large number of international agreements covering student exchanges and internships, joint programmes, and research collaborations. The University’s strong global rankings give credence to its claim to a culture of academic excellence. The Audit Panel commends the University on its proactive efforts in securing a large number of international agreements.
- 7.16 The Audit Panel investigated the impact of international perspectives on the curriculum. They were advised that the international profile of faculty created a natural tendency to bring international perspectives to HKUST. Some expressed the view that greater emphasis was required on local issues and contexts rather than on international perspectives. Participation in CELT sessions for TAs and for faculty on cross-cultural competence is limited. Given HKUST’s focus on and achievements in global engagement, the Audit Panel formed the view that HKUST would benefit from giving formal consideration at a strategic level to the internationalisation of the curriculum and the implications of such a development which might include, for example, pro-active faculty and curriculum development.
- 7.17 The Audit Panel therefore recommends that faculty and TAs be trained in cross-cultural competency in formal and informal learning, teaching and assessment, given the significance of this area to HKUST.

8. CONCLUSIONS

- 8.1 In its short history, HKUST has advanced to become a leading international university in its distinctive areas. It describes itself as an American-style university in China and Hong Kong’s most international university. It has set itself ambitious goals and is energetically pursuing them. For these reasons, the University has strong grounds for being proud of its achievements to date.
- 8.2 Since the last QAC Audit, HKUST has embraced major internal changes associated with reform of the higher education sector in Hong Kong. In addition, the President is championing the drive towards ‘1-HKUST’, where internal silos are disrupted and disciplines, structures and schools are able to interact creatively. In any institution undergoing this level of change and

growth, it can be challenging to ensure that all aspects of the mission continue to be fulfilled. It will remain important to engage internal and external stakeholders with the processes of change, to ensure that HKUST's aspiration for educational excellence achieves institution-wide cultural acceptance and sustainability.

- 8.3 Regular internal and external monitoring and review of quality assurance and enhancement processes, across all activities and against its stated purposes, provide the University with opportunities to reflect on and to improve its practice. Such activity is particularly important in an educational environment that is undergoing significant change, providing HKUST with the means to assure itself that outcomes remain strong and are manifested across all aspects of provision throughout the institution.

APPENDIX A: THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY (HKUST)

History

The driving force for the establishment of HKUST was a belief of the founders that Hong Kong needed a university that could propel it towards a knowledge-based economy. HKUST set out therefore to provide the entrepreneurs, scientists, engineers and global business managers to achieve that goal. The University was opened in 1991. The first intake of students enrolled in October 1991 at the current 60-hectare location in Clear Water Bay.

Vision and Mission of the University

The University Ordinance sets out the University's core purposes:

To advance learning and knowledge through teaching and research, particularly:
(i) in science, technology, engineering, management and business studies; and
(ii) at the postgraduate level;
and to assist in the economic and social development of Hong Kong.

In 2000, the University Council adopted a Statement of Vision:

To be a leading university with significant international impact and strong local commitment:

Global *To be a world-class university at the cutting edge internationally in all targeted fields of pursuit*

National *To contribute to the economic and social development of the nation as a leading university in China*

Local *To play a key role, in partnership with government, business, and industry, in the development of Hong Kong as a knowledge-based society*

Role Statement

HKUST:

- (a) offers a range of programmes leading to the award of first degrees and postgraduate qualifications particularly in Science, Technology, Engineering, Management and Business Studies;
- (b) offers programmes in Humanities and Social Science only at a level sufficient to provide intellectual breadth, contextual background and communication skills to an otherwise scientific or technological curriculum, and limited postgraduate work;
- (c) incorporates professional schools, particularly in the fields of Science, Technology, Engineering and Business;

- (d) pursues the delivery of teaching at an internationally competitive level in all the taught programmes that it offers;
- (e) offers research postgraduate programmes for a significant number of students in selected subject areas;
- (f) aims at being internationally competitive in its areas of research strength;
- (g) assists the economic and social development of Hong Kong by nurturing the scientific, technological, and entrepreneurial talents who will lead the transformation of traditional industries and fuel the growth of new high-value-added industries for the region;
- (h) pursues actively deep collaboration in its areas of strength with other higher education institutions in Hong Kong or the region or more widely so as to enhance the Hong Kong higher education system;
- (i) encourages academic staff to be engaged in public service, consultancy and collaborative work with the private sector in areas where they have special expertise, as part of the institution's general collaboration with government, business and industry; and
- (j) manages in the most effective and efficient way the public and private resources bestowed upon the institution, employing collaboration whenever it is of value.

Governance and Management

The University structure is “bi-cameral”: authority for administrative and financial matters rests with the University Council, and the University Senate acts as the supreme academic body. While the Council maintains an overview of the business of the University, including approval of budgets, the management of the University is delegated to the Administration, under the President. The President acts on the advice of the Executive Vice President and Provost, Vice Presidents and the University Administrative Committee.

The University Senate maintains active oversight of the curriculum, academic standards and educational quality. Key Senate committees include the Committee on Undergraduate Studies and the Committee on Postgraduate Studies. The Senate Committee on Teaching and Learning Quality has particular responsibility for the quality assurance of educational programmes.

Academic Organisation and Programmes of Study

Four Schools constitute the academic core of the University, offering undergraduate, taught postgraduate and research postgraduate programmes and courses through discipline-based Departments/ Divisions: four in Science, six in Engineering, six in Business and Management; three in Humanities and Social Sciences, including the Centre for Language Education; and two under the Interdisciplinary Programs Office, which offers cross-School programmes.

Building on this core, the HKUST Jockey Club Institute for Advanced Study was established in 2006, moving into its own building in 2013.

Staff and Students Numbers

In 2013/14, the University had 8 777 undergraduate and 1 351 postgraduate students in UGC-funded programmes. Enrolments in self-financed programmes accounted for a further 2 664 students. The teaching staff comprises 462 regular and 63 visiting and short-term staff to give a total of 525. 98.1% of teaching staff members have doctorates.

Revenue and Estate

Consolidated income for the year ending 30 June 2014 was HK\$4,198 million of which HK\$2,081 million (50%) came from government subvention and HK\$948 million (23%) from tuition, programmes and other fees.

APPENDIX B: INSTITUTIONAL RESPONSE TO THE AUDIT FINDINGS

A leading international university

The University welcomes the report from the QAC Audit Panel and is pleased to receive peer recognition that *“In its short history, HKUST has advanced to become a leading international university ...”* with *“strong grounds for being proud of its achievements to date”* [paragraph 8.1]. HKUST has achieved this reputation by a clear focus on its distinctive mission and commitment to a *“culture of academic excellence”*, demonstrated by *“the University’s strong global rankings”* [paragraph 7.15]. High academic standards are reflected in the commendation of the *“rigorous and scholarly approach to quality improvement and the maintenance of standards in grades”* [Executive Summary (h) and paragraph 4.12].

Highly employable graduates

HKUST takes great pride in its graduates’ success. The commendation of *“the impressive standard of achievement of graduate employment and the proportion of its graduates pursuing further study”* acknowledges this success and reflects the Panel’s recognition *“that the academic environment of HKUST is conducive to the development of graduates who are sought-after employees”*. Employers *“reported on graduates positively”* and confirmed *“that HKUST graduates are of high quality and are generally sought-after”* [Executive Summary (i) and paragraphs 2.19 & 4.13]. The University will continue to seek feedback from employers, especially those who have direct knowledge of HKUST’s programs and graduates.

A transformative, creative and global undergraduate education

HKUST is commended *“for its creative, broad-based and detailed approach to implementing the 4-year degree programme and the transformative effect of the new tri-modal approach to undergraduate education”* [paragraph 3.13]. The Panel noted the range of opportunities and measures to support and guide students [paragraphs 3.30 – 3.32] and commended the University for *“implementing a tracking system designed to monitor the whole student experience, including progress through the curriculum, engagement with advisors, and participation in the co-curriculum”*. Taking this system forward will allow the University to enhance further student support [paragraph 3.34].

The University *“has added considerable resources to enhancing different aspects of the student experience”*. The Panel *“found much evidence that the University continues to strive to provide additional opportunities for students and has set up funding to support teaching and learning development”* [paragraph 7.3]; and concluded *“that the University’s policies and procedures for enhancing the student learning experience are fit for purpose and noted the energy and commitment of HKUST to enhancing the student experience”* [paragraph 7.5].

Two commendations recognise the commitment to provide students with international exposure: *“the substantial and successful efforts of HKUST to provide international service learning and exchange opportunities for its students”*; and the *“proactive efforts in securing a large number of international agreements”* [Executive Summary (p) and paragraphs 7.12 & 7.15]. Since HKUST programs fulfil the “global” curriculum development aspects specified in the audit manual, the University requested a clearer explanation of *“internationalisation of the curriculum”* [paragraph 7.16] from the Audit Panel and invites the QAC to engage the sector in developing a shared understanding of this aspect of the “global engagements” audit theme.

The University takes cross-cultural integration extremely seriously. The Panel was informed of the many efforts on cross cultural interaction and awareness of diversity/inclusivity in both the faculty and student communities that have been initiated over the previous years. As these many efforts continue, HKUST will take account of the recommendation in paragraph 7.17 to develop policies and practices that foster greater integration and embrace the *I-HKUST* culture of a truly integrated, international university.

Innovative and effective teaching

“Promotion and reward based entirely on the notion of a scholar-teacher” culture are noted and *“well received”*. Opportunities for faculty development, recognition and reward are fully acknowledged by the Panel commending the University for its *“broad range of provision to enhance faculty development by Schools and Departments and by CELT staff, together with its use of a range of evidence of teaching effectiveness in recruiting and rewarding faculty”* [Paragraphs 3.25 & 3.26]. Innovative approaches to teaching, in particular e-Learning initiatives linked to more engaged, in-class experiences are a key component of HKUST’s strategy. Through rapid development of MOOCs and blended learning endeavors, HKUST is widely considered a leading international institution in this area. The University was the first in Asia invited to join both Coursera and edX: this offers direct support to the commitment and quality of HKUST’s efforts. The recommendation in paragraph 3.20 sets out areas of development in which HKUST already is fully engaged as components of the teaching and learning strategy, including new developments under the tri-modal framework. This strategy reflects the University’s broad vision for innovative pedagogy that goes beyond the somewhat narrow concept of e-Learning.

Successful portfolio of taught postgraduate (TPg) programs

The Panel was made aware of the quality assurance practices that apply to all taught programs and noted that *“many of HKUST’s (TPg) programmes are highly selective and are all subjected to as rigorous a process of programme approval as any undergraduate programme”* [paragraph 6.10]. The Panel also affirmed the value of the quality assurance procedures for the University’s taught postgraduate provision, which include the periodic external review of TPg programs (paragraphs 2.22 & 6.15). The University’s strategy for TPg provision is based on faculty strengths and

expertise, and community need. The Panel was informed of the detailed work that goes into the overall strategic planning, monitoring and review of TPg programs which includes data analysis of the quality of applicants and the popularity of programs. It is in this context that the University will consider the recommendation in paragraph 6.16 and the related reference in the Executive Summary (n).

Developing future researchers and academics

The University was extremely proud that the UGC's Research Assessment Exercise 2014 determined that HKUST faculty produced the highest proportion of internationally excellent research work in the UGC sector. This success and research ethos is reflected in the commendation of "*the actions (the University) has taken to establish and foster a rich research environment that provides strong local support for the development of students as future researchers*" [paragraph 6.8]. The Panel has also recognised that "*in spite of the intense competition for the UGC research student quota, the University has enjoyed growth in its research student numbers and has maintained its ratio of research students at international standards*" [paragraph 6.6]. The University's practices for the supervision and assessment of research postgraduate students are on a par with those of the most internationally prestigious, world-class research universities. The PhD examination includes an oral presentation by the candidate followed by questions from a Thesis Examination Committee which includes a faculty member external to HKUST who has expertise in the field being examined: both of these sessions are open to all members of the University and departmental guests. Faculty are very aware that the outcomes of their research students' research competences as reflected in the public thesis examination are a well-established indicator of their supervisory abilities. Continual enhancement of the research postgraduate student learning experience takes place via a range of mechanisms which include, among others, the following: the development of Teaching Assistants, as affirmed by the Audit Panel (paragraph 3.29); the continual monitoring and development of the Professional Development Course (paragraph 6.5); continuing to support international research exchanges; and the sharing of best practices in research supervision for faculty development (paragraphs 6.5 & 6.7).

Listening to Students

HKUST takes the student voice extremely seriously. This is repeatedly acknowledged in the audit report, e.g. by "*the clear evidence that HKUST has integrated student feedback into a range of activities including annual assessment of faculty performance*"; by requiring "*that annual reports on teaching and learning quality from Schools and academic-support units report specifically on feedback to students in response to their suggestions for improvement*"; by the array of mechanisms to obtain student feedback and monitoring mechanisms; and by the "*numerous examples of actions taken in response to student feedback*" and the "*clear examples of change that have resulted*" from student feedback [paragraphs 3.35 – 3.38, 5.6 and 7.4].

Rigorous quality assurance, data analysis and benchmarking

The University welcomes the Panel’s commendation of HKUST “*for establishing a comprehensive and integrated annual reporting framework on learning and teaching which has been embraced by all levels of the University and leads to timely reporting of outcomes and shared understanding of good practice*” [paragraph 2.16]; and for affirming the steps taken “*to extend external benchmarking across all facets of the University, to routinely include data-based comparisons in addition to peer-review benchmarking*” [paragraph 5.10].

The Panel was informed that the references to the provision of data do not accurately reflect the current situation. For example, faculty have access to Student Feedback Questionnaire (SFQ) data at course level and years of data at section level are available to the HKUST community. Open-ended comments from SFQ surveys are available to course instructors and Heads of Department. Trend data is available on the SFQ website. Access to exit survey data, including open-ended comments, is available to School and Department heads and their representatives. Course grades are sent to Departments and Schools each term. The T&L Data Warehouse archives course and honours classification data for the past six years, which allows trend analysis. Faculty without automatic access to data can request access via their Head of Department. Areas of concern that emerge are highlighted, reviewed and discussed by Deans and at Departmental level. Importantly, the Panel was provided with evidence that actions are taken in response to data analysis, which is a routine feature of HKUST’s quality assurance processes. Also, the Panel may have misunderstood the processes for monitoring implementation of the strategic plan (overseen by the Council) and annual reporting on teaching and learning (overseen by the Senate) [Executive Summary (k) and paragraphs 3.38, 5.5 and 5.7].

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The University has benefited from the QAC audit process and the Panel’s report in many respects. Several areas were substantially developed as a consequence of a critical self-review in preparation for the audit. Consideration of the areas for development will help the University to continue to offer high quality programs that are relevant to HKUST’s graduates and the community; and to provide an internationally-focused quality learning experience underpinned by peer-reviewed internationally-excellent research and rigorous quality assurance and enhancement processes.

## **APPENDIX C: ABBREVIATIONS AND ACRONYMS**

|       |                                                               |
|-------|---------------------------------------------------------------|
| ADP   | Academic Development Proposal                                 |
| CELT  | Center for Enhanced Learning and Teaching                     |
| CPS   | Committee on Postgraduate Studies                             |
| CTLQ  | Committee on Teaching and Learning Quality                    |
| CUS   | Committee on Undergraduate Studies                            |
| EVPP  | Executive Vice-President and Provost                          |
| HKUST | The Hong Kong University of Science and Technology            |
| ILOs  | Intended Learning Outcomes                                    |
| IPO   | Interdisciplinary Programs Office                             |
| LMS   | Learning Management System                                    |
| MOOCs | Massive Open Online Courses                                   |
| PGSO  | Office of Postgraduate Studies                                |
| QAC   | Quality Assurance Council                                     |
| QAF   | Quality Assurance Framework                                   |
| TA    | Teaching Assistant                                            |
| UGC   | University Grants Committee                                   |
| UGEA  | External Undergraduate Education Advising (School of Science) |
| UROP  | Undergraduate Research Opportunities Program                  |

## **APPENDIX D: HKUST AUDIT PANEL**

The Audit Panel comprised the following:

Professor Jan Thomas (Panel Chair)

Vice-Chancellor and President, University of Southern Queensland

Professor Trudy Banta

Professor of Higher Education and Senior Advisor to the Chancellor for Academic Planning and Evaluation, Indiana University-Purdue University Indianapolis

Professor Edwin T C Cheng

Dean, Faculty of Business, Fung Yiu King – Wing Hang Bank Professor in Business Administration, and Chair Professor of Management, The Hong Kong Polytechnic University

Mr Edmund K H Leung

Chief Officer, Kowloon-Canton Railway Corporation

Professor Wing-shing Wong

Choh-Ming Li Professor of Information Engineering, The Chinese University of Hong Kong

### **Audit Coordinator**

Dr Melinda Drowley

QAC Secretariat

## **APPENDIX E: QAC'S MISSION, TERMS OF REFERENCE AND MEMBERSHIP**

The QAC was formally established in April 2007 as a semi-autonomous non-statutory body under the aegis of the University Grants Committee of the Hong Kong Special Administrative Region.

### **Mission**

The QAC's mission is:

- (a) To assure that the quality of educational experience in all first degree level programmes and above, however funded, offered in UGC-funded institutions is sustained and improved, and is at an internationally competitive level; and
- (b) To encourage institutions to excel in this area of activity.

### **Terms of Reference**

The QAC has the following terms of reference:

- (a) To advise the University Grants Committee on quality assurance matters in the higher education sector in Hong Kong and other related matters as requested by the Committee;
- (b) To conduct audits and other reviews as requested by the UGC, and report on the quality assurance mechanisms and quality of the offerings of institutions;
- (c) To promote quality assurance in the higher education sector in Hong Kong; and
- (d) To facilitate the development and dissemination of good practices in quality assurance in higher education.



**Membership** (as at April 2015)

Mr Lincoln LEONG Kwok-kuen, Chief Executive Officer, MTR Corporation Limited  
JP (Chairman)

Mr Roger Thomas BEST, JP Former Partner, Deloitte Touche Tohmatsu

Professor Adrian K DIXON Master of Peterhouse and Emeritus Professor of  
Radiology, University of Cambridge, UK

Dr Judith EATON President, Council for Higher Education  
Accreditation, USA

Mr Paul SHIEH Wing-tai, SC Senior Counsel, Temple Chambers

Dr Michael SPENCE Vice-Chancellor and Principal,  
The University of Sydney, Australia

Professor Amy TSUI Bik-may Chair Professor of Language and Education,  
The University of Hong Kong

Professor Kenneth YOUNG Master of CW Chu College, The Chinese University  
of Hong Kong

**Ex-officio Member**

Dr Richard ARMOUR, JP Secretary-General, UGC

**Secretary**

Ms Eva YAM Deputy Secretary-General (1), UGC