Report of a Quality Audit

of The Hong Kong University of Science and Technology

November 2010
Quality Assurance Council

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QAC Audit Report Number 5

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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.   The QAC fulfils this task primarily by undertaking periodic quality audits of the 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 most 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; and
- the promotion of quality assurance and enhancement and the spread of good practice

The QAC's approach to quality audit stems from recognition that the higher education institutions in Hong Kong have distinct and varied roles and missions, reflecting the UGC's vision of a differentiated yet interlocking system.   The QAC does not attempt to straitjacket institutions through a single set of standards or objectives, but recognises that each institution has objectives appropriate to its mission.   The QAC defines quality in terms of 'Fitness for Purpose', where institutions have different purposes which reflect their missions and the role statements they have agreed with the UGC.

A QAC audit is not a review against a predefined set of standards.   It does, however, require institutions to articulate and justify the standards they set for themselves, and demonstrate how the standards are achieved.   Since student learning is the focal point of the QAC audit system, audits examine all aspects of an institution's activities which contribute to the quality of student learning.   Full details of the audit procedures, including the methodology and scope of the audit, are provided in the QAC Audit Manual, which is available at: http://www.ugc.edu.hk/eng/qac/index.htm.

EXECUTIVE SUMMARY

The quality of student learning is the focal point of Quality Assurance Council (QAC) quality audits. The audits are intended to assure the Hong Kong University Grants Committee (UGC) and the public that institutions deliver on the promises they make in their role and mission statements in regard to their educational objectives. A QAC audit is therefore an audit of an institution's Fitness for Purpose in teaching and learning. The audit examines whether an institution has procedures in place appropriate for its stated purposes, whether it pursues activities and applies resources to achieve those purposes, and whether there is verifiable evidence to show that the purposes are being achieved.

This is the Executive Summary of a QAC quality audit of The Hong Kong University of Science and Technology (HKUST) conducted in 2010. The report presents the QAC's findings as elicited by the QAC Audit Panel, supported by detailed analysis and commentary. The findings cover each of the audit focus areas as well as the institution as a whole. Where appropriate, the findings are expressed as **Commendations** of good practice; **Affirmations** which recognise improvements the institution is already making as a result of its self-review; and **Recommendations** for improvement. These are listed below.

Overall, the Panel observed that in its short history HKUST has achieved a strong reputation and has a staff that is committed to supporting the further development of the University. There is a strong quality assurance culture with robust processes in place, and the Panel is confident that the University will continue to enhance the quality of its teaching and learning.

Commendations

1.   The QAC commends HKUST for the articulation of graduate attributes through the ABC LIVE framework and for its continuing implementation as a foundation for taught undergraduate programmes.   *[Page 7]*

2.   The QAC commends HKUST for the institutional sense of community that pervades interactions among and between students and staff.   *[Page 13]*

3.   The QAC commends the University for the effectiveness of the system of student advising and mentoring.   *[Page 13]*

4.   The QAC commends HKUST for the scale and management of the student international exchange programme.   *[Page 16]*

5.   The QAC commends the University for the effective induction and mentoring of new academic staff.   *[Page 22]*

6.   The QAC commends HKUST's training of Teaching Assistants (TAs) and the effectiveness of the system of TA Coordinators.   *[Page 22]*

7.   The QAC commends HKUST for its quality assurance processes for research postgraduate programmes and for the extensive support it provides to research students.   *[Page 25]*

Affirmations

1.   The QAC affirms HKUST's intention to redevelop the strategic plan and encourages the University to incorporate measurable performance indicators, milestones and a process of progress review.   *[Page 8]*

2.   The QAC affirms the intention of HKUST to further emphasise the use of data in institutional planning and operations through the appointment of the Director of Planning and Institutional Research.   *[Page 9]*

3.   The QAC affirms the work of the Committee on Teaching and Learning Quality (CTLQ) in disseminating information about good practice, and encourages the Committee to develop a broad-based strategy for informing the University community about successful innovations in teaching and learning.   *[Page 10]*

4.   The QAC affirms the priorities being given to developing interdisciplinary and inquiry-based learning in the new four-year programme.   *[Page 11]*

5.   The QAC affirms HKUST's steps towards aligning course content, teaching methods and assessment with intended learning outcomes, thus facilitating implementation of ABC LIVE throughout the curriculum.   *[Page 12]*

6.   The QAC affirms the University's commitment and actions to improve the English language competence of students throughout their entire programmes of study.   *[Page 13]*

7.   The QAC affirms the appointment and role of the Dean of Undergraduate Education in coordinating academic and support activities to ensure that the undergraduate experience is a developmental and holistic experience encompassing a broad range of learning activities. *[Page 14]*

8.   The QAC affirms HKUST's efforts to extend significantly the internship programme. *[Page 16]*

9.   The QAC affirms the efforts of the University to establish a framework, based on ABC LIVE, for the further development of experiential learning and its embedding in the four-year curriculum.   *[Page 16]*

Recommendations

1.   The QAC recommends that HKUST introduce systematic institutional benchmarking with peer institutions, targeted towards improvement in areas of high priority identified in the redeveloped strategic plan.   *[Page 9]*

2.   The QAC recommends that HKUST devise a formal system of informing students about changes made as a result of input through the various feedback mechanisms in place. *[Page 15]*

3.   The QAC recommends 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.   *[Page 15]*

4.   The QAC recommends 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.   *[Page 18]*

5.   The QAC recommends that HKUST introduce a system of periodic reviews of all taught programmes, with defined frequency, terms of reference and requirements for action and follow-up on review recommendations.   *[Page 19]*

6.   The QAC recommends that HKUST develop an institutional assessment policy based on international best practice with reference to the number, timing and scale of assessment tasks and the nature of feedback to students on their performance relative to course ILOs. *[Page 20]*

7.   The QAC recommends that the Committee on Undergraduate Studies take a stronger role in monitoring the distribution of grades and awards that fall outside HKUST's guidelines on percentage bands.   *[Page 21]*

8.   The QAC recommends that HKUST articulate consistent procedures for using various sources of evidence in evaluating teaching performance.   *[Page 22]*

1.   INTRODUCTION

1.1   This is the report of an audit of the quality of the student learning experience at 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 the QAC on 18 December 2009.   A one-day Initial Meeting of the Audit Panel was held on 15 January 2010 to discuss the Submission.   The Panel Chair and Audit Coordinator visited HKUST on 16 January 2010 to discuss the detailed arrangements for the audit visit.

1.2   The Audit Panel visited HKUST from 15 to 18 March 2010 and met over 100 staff and 50 students from across the University, as well as a number of external stakeholders, including lay members of the HKUST Council, local employers and graduates of HKUST.

1.3   HKUST is one of eight institutions in Hong Kong funded by the University Grants Committee (UGC).   Established in 1991 it has approximately 5,800 undergraduate and 1,216 postgraduate students enrolled in UGC-funded programmes with a further 1,872 postgraduate students in self-funded programmes.   All of the approximately 483 teaching staff have doctoral qualifications with 80% of those qualifications from leading North American and UK universities.   The academic programmes are delivered through four schools: Science; Engineering; Business and Management; and Humanities and Social Sciences.

1.4   A brief profile of HKUST is provided in Appendix A.   It includes the University's role statement as agreed with the UGC and brief details of its history, mission, vision and organisational structure.

1.5   The Institutional Response to the Audit Report is provided in Appendix B.   A list of abbreviations, acronyms and definitions used in the Audit Report is provided in Appendix C.   Details of the Audit Panel are provided in Appendix D.   The QAC's Mission, Terms of Reference and Membership are provided in Appendix E.

1.6   Since student learning is the focal point of the audit system, QAC audits examine all aspects of an institution's activities which contribute to the quality of student learning. These activities range from planning and policy development, through programme design, approval and review, to teaching, assessment and student support.   The QAC has selected a set of such activities, common to all institutions, as the 'focus areas' of audit.   Each focus area is a significant contributor to student learning quality and is sufficiently generic that it can be interpreted in a way which is relevant to each institution's activities and practices.   Taken together, the focus areas effectively define the scope of a QAC audit.

1.7   The Audit Report follows the general guidance provided in the QAC Audit Manual[1] and covers the audit focus areas, with its structure generally being based on the format of HKUST's Institutional Submission.

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[1] http://www.ugc.edu.hk/eng/qac/index.htm

1.8   The QAC and the Audit Panel are grateful to HKUST for the University's exemplary cooperation throughout the audit process.   The Panel particularly appreciates HKUST's speed and helpfulness in responding to all requests.

1.9   The Panel noted that the University had undertaken a rigorous and frank process of self-review in preparation for the QAC audit and had identified a number of areas in which improvements were needed.   This openness gives confidence that the quality assurance systems at HKUST are well embedded in the culture and that the University will continue to work on those aspects identified as needing attention.   The intention of this report is to provide further guidance for the improvement process, building on the self-review outcomes and the strong foundations of policy and procedure that underpin the quality assurance arrangements at HKUST.   The sections that follow detail the different components that, taken as a whole, make up the quality assurance system at the University.

2.   ARTICULATION OF APPROPRIATE OBJECTIVES

2.1   The agreed Role Statement for HKUST includes the expectation that HKUST will offer a *range of internationally competitive programmes leading to the award of first degrees and postgraduate degrees particularly in science, technology, engineering, management and business studies*, and be *internationally competitive in its areas of research strength*.

2.2   The University's objectives for education are articulated in the 2020 Strategic Plan and are further developed in the University's Academic Development Proposals (ADP) 2009-2012.

2.3   The Panel formed the view that the University's education activities are consistent with its Mission.   Further, there is broad understanding and acceptance of the Mission by stakeholders including staff, alumni and employers.   The Panel noted that the HKUST Council has three priorities consistent with the Mission: (1) provision of high quality educational programmes with successful introduction of the four-year undergraduate degree structure mandated for all Hong Kong universities as part of the restructuring of the current pattern of secondary and university education to a 3+3+4 model; (2) further development of the Institute for Advanced Study (IAS) as a strategy for attracting top tier academics to the University; and (3) the initiation of an effective China strategy. The Panel formed the view that the Council has a clear sense of its role and relationship to the University in terms of strategic direction and oversight of University operations.

2.4   The HKUST statement of graduate attributes, ABC LIVE, and the efforts to implement Outcome-Based Education (OBE), underpin the planning for the four-year curriculum. The Panel considered ABC LIVE to be a succinct and appropriate statement of graduate attributes, consistent with the University's educational objectives.   ABC LIVE articulates goals of Academic Excellence; Broad-based Education; Competencies and Capacity Building; Leadership and Teamwork; International Outlook; Vision and an Orientation to the Future; and Ethical Standards and Compassion.   It is used as a framework for curriculum development in all Schools.   It is clearly a significant driver of educational development activities.

Commendation 1

The QAC commends HKUST for the articulation of graduate attributes through the ABC LIVE framework and for its continuing implementation as a foundation for taught undergraduate programmes.

3.   MANAGEMENT, PLANNING AND ACCOUNTABILITY

Management of Teaching and Learning

3.1   The management of teaching and learning at HKUST is based on a structure of four schools with associated departments, all of which have extensive delegated authority and responsibility for quality assurance.   Policy coordination is achieved through the Senate and three of its committees: the Committee on Undergraduate Studies (CUS), the Committee on Postgraduate Studies (CPS) and the Committee on Teaching and Learning Quality (CTLQ).

3.2   A recent initiative in governance is the introduction of a policy outlining new committee structures at departmental level.   This is expected to encourage participation, develop academic leadership skills of promising academics and provide greater support to the heads of the departments.   Arrangements for cross-institution coordination include two senior academic leadership positions. The Dean of Undergraduate Education (DeanUG) coordinates the undergraduate student experience and the Vice President for Research and Graduate Studies is responsible for developing the research-teaching nexus and graduate education.

3.3   While a heavily devolved system can have strengths there are two apparent weaknesses at HKUST.   Firstly, there is a plethora of committees at all levels with the potential for duplication of effort on both the horizontal and vertical axes.   The Panel examined the recently introduced detailed 'guideline structure' for departmental governance and the range of committees in a number of academic units, spoke to staff at different levels and concluded the arrangements are potentially confusing and require extensive engagement by the academic staff in committee activities.   Each school and department has an undergraduate and a postgraduate committee, a committee on staff appointment and substantiation, various task forces, and more.   There is extensive overlap in membership with discussion of topics in multiple fora.   Fortunately, some of the committees may have limited life as they are dedicated to specific initiatives such as the implementation of OBE.   Staff members interviewed were often unsure of relationships between committees but seemed not to consider the workload associated with this extensive committee structure as onerous.   Nonetheless the Panel formed the view that there could be some gains in efficiency through streamlining the structure. Many local universities have engaged in such streamlining.

3.4   A second implication of the devolved structure at HKUST is the danger of drift in the implementation of University-level policies to the point where the original intentions of policies are compromised by considerable variation in practices across the University. While the Panel respects the University's chosen *modus operandi*, it noted that the University is apparently divided into four *silos*.   This impacts on its flexibility in

meeting new challenges such as the development of interdisciplinary studies and a broad-based China strategy without introducing yet more coordinating positions and structures. The President is aware of the issue and one of his priorities is to achieve better integration in the work of the University. This, and his goal of achieving closer alignment between University priorities and the allocation of resources, will be important factors in driving cross-school initiatives.

Strategic Plan

3.5   While the University has a strategic plan (covering the period 2005-2020) the Panel noted that during interviews it was not a point of reference for discussion of institutional priorities other than the introduction of OBE and the move to a four-year undergraduate curriculum (both of which are externally imposed). The lack of connection between the strategic plan and activities in the University may be because the current strategic plan lacks the necessary level of detail for it to be an effective guide for action. For example, the plan does not have measurable performance indicators to allow tracking of progress towards institutional goals. Currently, initiatives at HKUST tend to operate on a project basis when, in the Panel's view, they should be aligned and integrated within the overall plan for the University.

3.6   The Panel was pleased to hear the recently appointed President's intention to redevelop the University's strategic plan and noted the Council's interest in being involved in this initiative. Progress has been made but there needs to be a timetable for this activity and an indication of how it will be carried out, especially in view of the significant engagement of staff in developing the four-year curriculum and OBE. The new strategic plan should incorporate the Council's and President's vision and be supported by articulation of goals, measurable performance indicators, milestones and a process of review of progress.

3.7   The University has published important statements regarding the importance of teaching and learning. The next step is to develop an overarching plan for teaching and learning at HKUST for the future. This teaching and learning plan should be informed by the University's strategic plan and frame the future direction for major activities such as the new curriculum, OBE, the use of educational technology, the work of the CTLQ and the programmes operated by the Center for Enhanced Learning and Teaching (CELT).

> **Affirmation 1**
>
> **The QAC affirms HKUST's intention to redevelop the strategic plan and encourages the University to incorporate measurable performance indicators, milestones and a process of progress review.**

Benchmarking

3.8   The Panel heard frequent mention of local and international universities as points of reference for HKUST in relation to programmes and research activities. However, it was clear that the practice of comparison is generally informal and is oriented more to procedures and processes than to aspirational outcomes. There is no institutional strategy for benchmarking aimed at enhancing performance through targets informed

by the achievements of peer institutions.

> **Recommendation 1**
>
> **The QAC recommends that HKUST introduce systematic institutional benchmarking with peer institutions, targeted towards improvement in areas of high priority identified in the redeveloped strategic plan.**

Use of Data

3.9 The University collects a great deal of data on its operations – through its reporting obligations to the UGC, surveys of students and other stakeholders, and various other avenues. Data on a number of areas are presented at the monthly Deans' Meeting and are available on a website to support the preparation of Annual Programme Reports.

3.10 The Panel noted that despite its quantity the data held by the University are not well exploited. Data are stored in tabular form, are uninterpreted, and are difficult to interrogate. There are no information management tools which allow users to link and access different data sets, to present data easily in graphical form, or to analyse data for various purposes. This makes it difficult to use data routinely to inform decisions and policy and to measure performance against plan.

3.11 The Panel considers that HKUST needs a more sophisticated approach to the presentation, analysis and use of data. As a simple example, when examining performance against plan, performance indicators can be highlighted in green, amber or red according to whether they are tracking significantly above, on or significantly below target. Similarly, HKUST's programme monitoring and review processes (section 7) would benefit from the provision of data analyses highlighting areas of potential concern. Such approaches are similar in concept to the process the University used to good effect in its audit self-review in which it classified the status of various activities in terms of green, amber or red lights.

3.12 The Panel was pleased to note that the University has recruited a manager of Institutional Research to support the analysis of institutional data and assist in strategic planning. This is a significant step towards achieving a culture in which data are routinely used for planning and decision making. The Panel encourages the University to undertake a thorough analysis of its data needs and to support those needs through acquisition of appropriate information management tools.

> **Affirmation 2**
>
> **The QAC affirms the intention of HKUST to further emphasise the use of data in institutional planning and operations through the appointment of the Director of Planning and Institutional Research.**

Resource Allocation

3.13 The University Administrative Committee (UAC) Budget Committee is responsible for the funding of academic staff and for the student learning environment. Self-funded

programmes are subject to approval by the UAC Sub-committee on Continuing and Professional Education (SCCPE) to ensure viability and capacity to operate without cross-subsidy. The funding model for undergraduate programmes is based largely on enrolments and class size, with some provision for new initiatives. Within schools resource allocation practices vary but the school managements generally hold back a proportion of their resources to support new priorities. The President has foreshadowed changes to the resource allocation process which should increase capacity for linking resources to the strategic goals of the institution as a whole.

Dissemination of Good Practice

3.14   The Panel heard of many instances of good practice in teaching and learning but concluded that more can be done to spread information about successful innovations across the schools. Holders of Teaching Development Grants (TDG) share information with colleagues but the process seems rather *ad hoc*. Recently, the CTLQ has played a role in highlighting good practices that come to the Committee's attention through the Annual Programme Reports. These examples are included on an institution-wide web page. However, such initiatives depend largely on the motivation of individual staff to seek out examples of good practice: they need to be extended to provide a systematic and pro-active approach to spreading information on innovation in teaching and learning. The CTLQ is making progress in this regard and should continue to take the lead in such developments.

> **Affirmation 3**
>
> **The QAC affirms the work of the Committee on Teaching and Learning Quality (CTLQ) in disseminating information about good practice, and encourages the Committee to develop a broad-based strategy for informing the University community about successful innovations in teaching and learning.**

4.   PROGRAMME DEVELOPMENT, CURRICULUM DESIGN AND APPROVAL PROCESS

4.1   The Academic Senate plays a central role in quality assurance at the University. The CUS and CPS are Senate committees with important roles in assuring academic quality through the programme design and approval processes.

4.2   The University undertakes a broad review of its UGC-funded programme profile every three years and uses the results to formulate an Academic Development Proposal to be submitted to the UGC for the following triennium. As noted earlier, the transition to a four-year curriculum is in progress and, along with the simultaneous implementation of OBE, is a major pre-occupation. The work of the university-wide and school-level OBE committees has been effective in ensuring substantial engagement with this requirement.

4.3   As mentioned in section 2, ABC LIVE articulates the desired graduate attributes on which OBE can build. The Panel was impressed by widespread progress in mapping ABC LIVE onto the curriculum, though the major achievements to date seem to be in

programme content rather than in pedagogy and assessment. The Panel suggests that there is a need for more emphasis to be placed at the next stage of implementation on how students will be taught and assessed (see Programme and Course Approval below).

The Four-year Degree Curriculum

4.4   The Working Group on the Four-year Degree Curriculum (WG4Y) is the key forum for the development and review of the new curriculum. Recommendations from this group are forwarded to the Senate via the CUS, along with input from the Committee on Undergraduate Core Education (CUCE).

4.5   HKUST sees the task of converting undergraduate degrees to a four-year degree structure as an opportunity to strengthen aspects of the curriculum such as inquiry-based learning; multidisciplinary general education; interdisciplinary programmes and co-curricular activities. The Panel learned about the University's intention to strengthen inquiry-based learning and its exploration of the potential to include a capstone unit to consolidate capacity for critical thinking. This direction was supported by the alumni who suggested that students need to be encouraged in lateral and creative thinking. The alumni also mentioned the desirability of attention to development of emotional intelligence as well as to social responsibility and sustainability issues. The Panel respects these views although it has some concerns that the growing expectations on the new curriculum may be difficult to manage without overloading it.

4.6   The Panel supports HKUST's steps towards introducing more interdisciplinary programmes, including establishment of the Interdisciplinary Programs Office (IPO) with an academic head.   There are, however, structural barriers to be dealt with in the shape of the four schools which have a substantial degree of operational autonomy. The move from three-year to four-year undergraduate degree programmes, with the consequent changes to curriculum, provides an opportunity to move the interdisciplinary agenda forward. The Panel encourages the University to build on what has been achieved thus far and seize that opportunity as interdisciplinary programmes will be important in ensuring that HKUST programmes remain relevant to community needs.

> **Affirmation 4**
>
> **The QAC affirms the priorities being given to developing interdisciplinary and inquiry-based learning in the new four-year programme.**

Programme and Course Approval

4.7   The process for development and approval of new programmes, be they UGC or self-financed, provides for input by the department, school and university.   There is also a requirement for input from an advisory group that includes external members before proposals are forwarded from departmental to school level and thence to the Senate via the CUS or the CPS for endorsement.   New programmes must indicate how they contribute to the graduate attributes specified in ABC LIVE.   The programme approval process is robust though the document templates currently in use have not yet

been fully adapted to OBE.

4.8   The course approval process incorporates use of a template that identifies Intended Learning Outcomes (ILOs) but does not yet require the alignment of teaching modes and assessment items with the ILOs.   Nor does the template require an alignment of course with programme outcomes.   However, a template requiring such alignments has been drafted as a pilot for new courses in the General Education (GE) core of the four-year degree and is under consideration for systematic use with all four-year courses and for the review of existing courses in the three-year curriculum.   This pilot template represents a useful approach to take forward as it appears to call for deeper reflection on how course teaching methods and assessment items contribute effectively to achievement of ILOs.

> **Affirmation 5**
>
> **The QAC affirms HKUST's steps towards aligning course content, teaching methods and assessment with intended learning outcomes, thus facilitating implementation of ABC LIVE throughout the curriculum.**

English Language Competence

4.9   The University places high priority on meeting community expectations of the English language competence of graduates.   It has developed a sizeable Language Center which offers, *inter alia,* a self-access service to which staff may refer students or which students may access on their own initiative.   Results of the UGC's 2008-2009 Common English Proficiency Assessment Scheme (CEPAS) show that final year undergraduate students achieve an average IELTS score of 6.74, a figure which has risen steadily in recent years and which is the third highest of UGC-funded institutions.

4.10   The new four-year curriculum includes a greater component of language learning, which the Panel sees as an appropriate response to the demand for graduates with high levels of language competence.   At present there is no systematic way of identifying students at academic risk because of poor language ability although the University suggests that students need to achieve an IELTS score of 6.0 at the end of their first year of undergraduate studies.   The Panel supports the work to improve tracking of students' proficiency between entry and exit from the University.   HKUST might also consider how language learning can be incorporated into mainstream disciplinary studies rather than being seen solely as the province of general education.

4.11   The employment of Communication Tutors in the schools to support postgraduate research students is an admirable innovation that contributes not only to the writing competence of postgraduate students but also to ensuring that they meet an adequate level of fluency in English before being employed as Teaching Assistants (TAs). This and other actions by the University confirm the commitment to improving language skills.

Affirmation 6

The QAC affirms the University's commitment and actions to improve the English language competence of students throughout their entire programmes of study.

4.12   The Panel noted that language expectations on all graduates in Hong Kong are increasing with the growing need for Putonghua proficiency.   The Language Center will need to monitor the instruction it provides to ensure that these growing expectations are met.

5.   THE STUDENT LEARNING ENVIRONMENT

5.1   Lectures, tutorials and laboratories are the main forms of teaching and learning at HKUST.   The University provides opportunities for independent learning and team work and indicated that, in 2009, 55% of students reported they had participated in three or more team projects over the year.   Since 2005 the Undergraduate Research Opportunities Program (UROP) has provided summer period attachments for undergraduates.   By 2009 some 269 students had participated.

Student Life

5.2   It was clear to the Panel that there is a strong sense of community among and between staff and students.   Data from surveys indicate that students have a high incidence of face-to-face discussions with professors and instructors.   The Panel received positive comments from students about campus co-curricular programmes including the Living Learning Communities project being trialled in one of the residential halls.

Commendation 2

The QAC commends HKUST for the institutional sense of community that pervades interactions among and between students and staff.

5.3   At the formal level, the Undergraduate and Postgraduate Coordinators based in departments provide a first point of contact for students. There is also an extensive and effective system of advising and mentoring.   The involvement of alumni as mentors for students is noteworthy and the Panel encourages the University to build on the success of this initiative.

Commendation 3

The QAC commends the University for the effectiveness of the system of student advising and mentoring.

5.4   While HKUST has a strong student community it seems that the students do not, by and large, engage in territory-wide student activities.   This appears to be an outcome of the highly directed nature of their studies and a strong commitment to academic achievement.   On the other hand, students indicated they want more flexibility in

organising their learning activities and in the scheduling of mid-term exams. In the interests of developing the whole person, the Panel encourages the University to introduce strategies to encourage greater participation in off-campus student activities.

Learning Support

5.5   Learning support is provided through a range of academic support units including the Language Center (section 4), the Library and the Information Technology Services Center. Students, including postgraduate research students, report that they are satisfied with the Library service. Comments about the IT Services were more varied, with some complaints about the reliability and reach of the wireless network. The Careers Service has recently been enhanced to provide a more intensive service to students.

5.6   While individual services evaluate their activities, it was not clear to the Panel that these evaluations are drawn together to give a picture of the effectiveness of support services as a whole. The position of Dean of Undergraduate Education (DeanUG) was created in 2007 (and filled in 2008) to play an important role in coordinating a wide range of academic and support services including general education and competency training; enrichment activities such as internships; and career placement. While progress seems initially to have been slow there is now a clear intention to accommodate the special needs of undergraduates in a research-intensive university and to ensure that the student experience is a developmental and holistic experience.

> **Affirmation 7**
>
> **The QAC affirms the appointment and role of the Dean of Undergraduate Education in coordinating academic and support activities to ensure that the undergraduate experience is a developmental and holistic experience encompassing a broad range of learning activities.**

Student Feedback

5.7   As discussed in section 3, the University needs to improve its use of empirical data for decision making, planning, performance monitoring and so on. HKUST collects student feedback through the Student Feedback Questionnaire (SFQ) and the Student Engagement and Satisfaction Questionnaire (SESQ) as well as through focus groups convened on an *ad hoc* basis. Results of the SFQ are made available on-line and students reported that some of the teaching staff inform them in class of changes made as a result of student feedback. However, many students interviewed by the Panel were unaware of any changes that may have been made and some were sceptical about the impact of their feedback. While there are a number of informal channels through which some students receive feedback, there seems to be no systematic way of devising action plans based on results of surveys and closing the loop by informing the students of changes being made as a result of their input.

Recommendation 2

The QAC recommends that HKUST devise a formal system of informing students about changes made as a result of input through the various feedback mechanisms in place.

E-Learning

5.8 The University reported an impressive number of on-going initiatives to extend the use of technology in teaching and learning, including remote video capture of lectures; a Personal Response System (PRS) to allow immediate feedback during large scale lectures; and mobile phone access to University information through an iPhone application.

5.9 Nonetheless, the Panel was surprised to discover that there is no overarching strategy for the use of technology in teaching and learning. A working group has carried out some preliminary groundwork but this has been heavily focused on developing the technology rather than on articulating a philosophy and direction for the development of e-learning at HKUST. The University needs a strategy based on a clearly articulated *pedagogy* for the use of technology in achieving desired educational outcomes. The strategy should address issues such as the role of e-learning in its teaching (e.g. as a replacement or supplement for certain kinds of classroom interaction, or as a means of reaching remote or busy students); the student cohorts for which e-learning is likely to be advantageous (e.g. students in full-time employment, or students located in mainland China); and the learning contexts in which technology has particular strengths (e.g. laboratory simulations, visualisation and scenario analysis). Such a strategy would guide HKUST in developing its staff and technical infrastructure; without it, the University may fail to meet the future expectations of its students and the competition of its peers. The Panel considers that development of an e-learning strategy is a priority, and that the strategy should be closely linked to the teaching and learning plan proposed in section 3.

Recommendation 3

The QAC recommends 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.

6. EXPERIENTIAL AND OTHER OUT-OF-CLASS LEARNING

6.1 The University has a number of experiential learning activities designed to enhance development of HKUST's desired graduate attributes. These include: international experiences, especially overseas exchange; an internship scheme to allow development of career-related skills; and the REDbird Award Program based on training and service learning. These activities are being mapped to the ABC LIVE framework.

6.2 The Internship Learning Scheme is a career exploration programme designed to equip students with workplace skills and industry knowledge. The experience of students,

reported through surveys and to the Panel, is generally positive. The Panel also heard positive reports from several alumni whose organisations provide opportunities for students through this scheme. HKUST intends to extend student participation from the current level of 200 to about 350 students (18% of the cohort) by 2012. This may be challenging and resource-intensive but the Panel observed that there is potential to build on the current good relationships with alumni and employers.

Affirmation 8

The QAC affirms HKUST's efforts to extend significantly the internship programme.

6.3 HKUST has an extensive international exchange programme. In any given semester, about 300 undergraduates are involved in international exchanges with a corresponding number of in-bound international students on the University campus. Students who had been on exchange told the Panel that there is a wide range of institutions from which to choose and that generally they had been successful in gaining a placement in one of their preferred universities. They indicated that they had received thorough briefing and preparation for the exchange and found it a valuable experience.

Commendation 4

The QAC commends HKUST for the scale and management of the student international exchange programme.

6.4 At the time of the audit visit, HKUST was engaged in a comprehensive review of out-of-class learning. The aim is to evaluate each activity in the context of ABC LIVE, to establish a rationale for integrating specific activities into the four-year curriculum, to improve coordination, and to increase the number of opportunities for students. The Panel was impressed by the range of data being collected to inform the further development of experiential learning and the direction being taken to embed it in the four-year curriculum. It was noted that the University's concern about which activities should legitimately be part of the credit-bearing curriculum is shared by a number of students who are unclear of the rationale for allocation of credit to some activities but not to others.

Affirmation 9

The QAC affirms the efforts of the University to establish a framework, based on ABC LIVE, for the further development of experiential learning and its embedding in the four-year curriculum.

7. PROGRAMME MONITORING AND REVIEW

Monitoring

7.1 The principal mechanism for programme monitoring is the Annual Programme Report (APR). Departments are required to submit an APR for each of their undergraduate and taught postgraduate programmes. The APRs are discussed in the relevant School,

which then makes a consolidated report to the CTLQ which in turn reports to the Senate.

7.2 APRs are expected to include, *inter alia*,

- reflections on data provided as part of the exercise (see below);
- planned actions, and follow-up on actions from previous reports;
- difficulties for development of the programme; and
- examples of good practice.

7.3 A wide range of student-related data (enrolment, employment, satisfaction and so on) is available to inform the APRs. However, departments must make their own interpretations of the data (see section 3) and no particular data sets are mandated for inclusion.

7.4 The Panel concurs that the practice of annual reporting is a good one. It observed, however, that the APRs it examined tended to be selective in the use of data, descriptive rather than analytical, and complacent rather than self-critical. There were considerable variations in the depth of analysis, the identification of key issues, and the sharpness of action plans. Most reports were completed 2-4 months after the end of the corresponding academic year, and consideration by the CTLQ and the Senate occurred about 5-7 months after the end of the year. The Panel also noted that discussion by the CTLQ tended to focus on the reporting process itself rather than on any systemic findings (indeed it would be difficult to determine systemic findings since there is no common data set across all APRs). More positively, the CTLQ does highlight examples of good practice in the reports for dissemination across the University.

7.5 The Panel heard that APRs are widely viewed as helpful, if somewhat onerous. The Panel endorses the annual reporting mechanism as a fundamental part of HKUST's quality assurance system but considers that the utility of APRs can be greatly improved. The Panel suggests that:-

- the APR template be amended to discourage discursive responses;
- HKUST identify common data sets important to the health of all programmes and mandate analysis and reflection on such data sets in each APR;
- the data for each programme be provided so as to highlight areas of potential concern;
- APRs give more emphasis to critical reflection and identification of areas for improvement;
- APRs include, where appropriate, action plans with clear accountabilities and time frames;
- APRs continue to highlight examples of good practice; and
- the reporting process be completed much sooner after the end of the academic year.

7.6 Such changes would focus attention on those programmes encountering problems (as identified by analysis of the data provided) while reducing the reporting burden – but not the obligation to improve – on the majority of programmes running well. The use of common data sets would also allow the University to draw systemic inferences to

inform policy making.

Recommendation 4

The QAC recommends 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.

External Review and Advice

7.7 All programmes are required to undergo regular external review but there is wide variation in how this requirement is fulfilled. For example, the undergraduate engineering programmes are subject to external accreditation by the Hong Kong Institution of Engineers while the School of Science has adopted a scheme for regular, external peer review of each discipline area. While such forms of review are undoubtedly valuable, the variations in practice lead to inconsistencies across the University in terms of the focus, frequency and rigour of external review. The University might also question whether it is wise to cede to professional bodies the responsibility for review in many of its discipline areas.

7.8 The Panel was informed that many taught postgraduate programmes have not been formally reviewed – the continued existence of self-financed programmes appears to depend on market demand as a proxy for review.

7.9 The Panel formed the view that HKUST cannot be confident that all its programmes are being reviewed with a focus and rigour appropriate to the University's vision. Professional accreditation reflects the minimum acceptable standards for a programme, rather than any higher standards to which the University might aspire. For programmes not subject to professional accreditation, the University has no mandated review procedures. The general education components of programmes are subject to little if any external review.

7.10 The Panel considers that the quality of HKUST's programmes would be more firmly assured by a University-wide process of external review, with common terms of reference and procedures. The procedures should define the frequency of reviews (review at five-year intervals is common elsewhere), the composition of review panels, and the mechanisms for following up recommended actions. They should also specify key data and documents to be provided, including previous annual programme reports. The University may also wish to extend the review process beyond programmes to all aspects of a department's activities, thus gaining a holistic view of a department.

7.11 The Panel is aware that the suggestion of a University-wide system of periodic review may provoke objections on grounds of disciplinary differences or additional work. It notes, however, that institutions elsewhere allow for disciplinary differences by augmenting terms of reference where appropriate, and that workload can be reduced by scheduling reviews in professional disciplines to coincide with accreditation requirements. It also notes that implementation of Recommendation 4 will significantly reduce the effort expended on annual programme monitoring.

Recommendation 5

The QAC recommends that HKUST introduce a system of periodic reviews of all taught programmes, with defined frequency, terms of reference and requirements for action and follow-up on review recommendations.

7.12   Outside the formal review process, Schools (and some departments) convene External Advisory Committees, principally comprising senior academics from comparable institutions.   In view of HKUST's vision statement, which emphasises contributions to the local and national communities, some advisory committees have surprisingly few members drawn from government, commerce and industry.   Members who spoke with the Panel indicated that they feel their advice is valued, though they are often unsure of its impact.   The Panel also met several alumni who act as individual advisers to Schools, outside the advisory committee system.   Further advice comes from external examiners of taught programmes but it is not clear to the Panel how their advice is weighed and dovetailed with advice from other external sources.

7.13   The Panel was provided with evidence of employer surveys for the University as a whole and also for one of the programmes.   Each resulted in useful information about needed areas of improvement, and in the case of the programme it was evident that the survey had resulted in a revision of the curriculum and specification of learning outcomes.

7.14   The channels of advice outlined above provide useful external input to programmes. The effectiveness of External Advisory Committees could perhaps be increased through University guidelines on membership and frequency of meetings.   However, the advice provided through such channels is typically piecemeal and specific to particular issues, and is no substitute for regular systematic review.

8.   ASSESSMENT

Assessment Policy

8.1   HKUST is in transition from a norm-referenced to a criterion-referenced approach to assessment.   The transition is a necessary part of the move towards Outcome-Based Education (OBE).   Although the change was initiated in 2006 the University recognises that many academic staff need to develop a better understanding of its implications.   In particular, many staff need help in defining and assessing levels of achievement against Intended Learning Outcomes (ILOs).   This is a matter which CLTQ and CELT should continue to address with urgency.   (See also section 4 and Affirmation 5.)

8.2   The Panel noted concern among some students and staff about the sheer volume of assessment.   Whether this concern is justified is difficult to determine.   However, in the absence of an institution wide assessment policy to guide the design of assessment at the course and programme level such concern is certain to persist.   The number, timing and scale of assessment tasks need to be examined on a programme by programme basis so that students are not overloaded and over-assessed.   The mapping

of programme ILOs to assessment tasks provides an ideal opportunity to undertake this exercise.

8.3   The Panel also heard that feedback on assessment tasks is often cursory or episodic, with minimal or no comments to inform and guide students. The strong formative value of assessment should be recognised through provision of timely qualitative feedback on all tasks completed during the teaching period.

8.4   Many universities have policies or guidelines covering the operational aspects of assessment. The Panel encourages HKUST to develop such a policy, based on international best practice, and covering the number, timing and scale of assessment tasks and the nature of feedback to students.

> **Recommendation 6**
>
> **The QAC recommends that HKUST develop an institutional assessment policy based on international best practice with reference to the number, timing and scale of assessment tasks and the nature of feedback to students on their performance relative to course ILOs.**

Grading and Awards

8.5   Heads of departments are responsible for approving grades submitted by individual academic staff. Heads have considerable discretion in how this is handled but there are guidelines for good practice endorsed by the CTLQ and the CUS. Final awards are recommended by Schools and confirmed by the CUS and the CPS under delegated authority from the Senate. Grading policy is set out in the HKUST Academic Regulations and Academic Programs Manual (November 2009 version) and these policies are circulated to academic staff with PowerPoint slides to help staff explain the policies to students.

8.6   The Panel was concerned to note that despite the existence of a clear policy and checking mechanisms, data provided to the Panel show that the distribution of grades often falls well outside University guidelines. Even more striking is the variation among Schools in the distribution of degree awards (Class 1, 2(I), and so on) with some Schools granting far more awards at the upper levels than might be expected under the policy. At the other end of the scale, course failure rates in some programmes and some disciplines are much higher than in others. The University's guidelines for assessment of students state that *in making judgments about the standard of students' work, the University's experience in the distribution of course grades should be taken into account*. The guidelines further indicate that the *course grades will normally fall* within one of a number of specified *percentage bands*. The Panel understands that there will be cases where the distribution of grades and awards outside the stated bands can be justified, particularly as the University moves to full implementation of a criterion-referenced assessment regime.   The point is not that such cases occur but that they occur with sufficient frequency to drive aggregate distributions well outside the bands, with wide variations among Schools, and with no comment from the CUS which is the relevant monitoring body. The Panel is not suggesting that the University change its assessment policy but considers that the CUS needs to be more engaged in oversight of the application of policy on grading and awards in the transition from

norm-referenced grading to criterion-based grading. The University needs to ensure that academic standards are not compromised and to guard against the development of a perception of grade inflation.

> **Recommendation 7**
>
> **The QAC recommends that the Committee on Undergraduate Studies take a stronger role in monitoring the distribution of grades and awards that fall outside HKUST's guidelines on percentage bands.**

8.7 The Panel did not inquire whether or how grade distributions are monitored in taught postgraduate programmes. It encourages the University to assure itself that there are no unjustified variations across programmes.

Academic Honesty

8.8 The matter of academic honesty is addressed through an Academic Honor Code and through extensive explanations by academic staff about ways to avoid plagiarism. The University acknowledges some concern about consistency of approach to academic misconduct and intends to involve CELT in the roll out of plagiarism detection software. The Panel was satisfied that these arrangements and plans are appropriate and sufficient to handle any issues of academic honesty.

9. TEACHING QUALITY AND STAFF DEVELOPMENT

9.1 It was clear to the Panel that students hold HKUST's teaching staff in high regard and that the staff, in their turn, are committed to supporting the students in their courses and programmes. The Panel heard from alumni that some of these positive relationships endure beyond graduation with teaching staff continuing to be a source of advice and expertise for graduates.

9.2 The University's Manual for academic personnel sets out rules, regulations and guidelines for the appointment, substantiation (tenure), reward and promotion of faculty members.

Induction

9.3 The Panel met with a range of academic staff and heard about arrangements to ensure that new staff members are adequately supported by their departments. These arrangements include induction to University and departmental processes, and mentoring by senior colleagues, which appears to happen in all departments. It was clear that the arrangements work well and new academics quickly adapt to working at HKUST. New academic staff also participate in the induction programme delivered by CELT and are followed up through individual contact by the Director of CELT at the end of their first semester at the University.

Commendation 5

The QAC commends the University for the effective induction and mentoring of new academic staff.

9.4   The University has a well developed system for the appointment of doctoral research students as TAs (section 11).   The induction of the TAs involves a mandatory 14-hour programme delivered by CELT.   Each department has a TA Coordinator (also a research student) who plays a major role in supporting and organising the work of the TAs.   The Panel noted that there is considerable variation in the workload of TA Coordinators as the number of TAs for which each Coordinator is responsible depends on the size of their department's PhD programme.   The University may wish to consider ways of making the workload more equitable, for example by limiting the number of TAs an individual Coordinator might oversee.

Commendation 6

The QAC commends HKUST's training of Teaching Assistants (TAs) and the effectiveness of the system of TA Coordinators.

Teaching Performance

9.5   In recent years the University has increased its emphasis on teaching performance to the extent that staff members are not promoted if their teaching is poor.   The Panel was told of several cases where individuals comfortably met the criteria for research achievement but were not performing well in teaching.   As a consequence, consideration of promotion was deferred until these individuals demonstrated that they had sufficiently improved their teaching performance.

9.6   While the Panel was persuaded that the University takes teaching performance seriously in substantiation and promotion, it also concluded that there is room for improvement in the measurement of teaching performance.   It is not clear, for example, that different types of evidence of teaching performance are sought across all departments, or are weighted consistently across the processes for annual review, substantiation and promotion.   In many cases, judgments seem to rely solely on SFQ scores; in others, review of classroom performance by peers or the head of department is taken into account; in yet others, analysis of course materials is used as an additional source of evidence.   The Panel supports HKUST's intention to diversify the sources of evidence used in the assessment of teaching performance and suggests that the University develop a policy which indicates how and when different types of evidence should be used.   HKUST may also wish to encourage the maintenance by teachers of a portfolio of qualitative and quantitative evidence of achievements in teaching.

Recommendation 8

The QAC recommends that HKUST articulate consistent procedures for using various sources of evidence in evaluating teaching performance.

Senior Teaching Fellows

9.7   The University has recently appointed a Senior Teaching Fellow in each School from within the ranks of the academic staff.   The intention is for the Fellows to act as champions and catalysts for excellent teaching within their schools, with an initial focus on the introduction of the four-year curriculum and OBE.   It is expected that each Fellow will pursue activities attuned to the needs of the School.   The Panel encourages the Fellows to avoid immersion in short-term projects and maintain a strategic view of the development of teaching and learning in their Schools.

Professional Development

9.8   Delivery of professional development of teaching staff is primarily the responsibility of CELT.   CELT provides an induction programme for new staff and offers a variety of courses and events designed to enhance teaching and learning.   The University has indicated that it intends to develop activities to increase the capacities of staff undertaking academic leadership or administrative roles such as dean and head of department.

9.9   CELT provides a rich array of resources for staff to improve their teaching and technology skills.   Involvement in CELT activities is voluntary, apart from the induction sessions.   CELT, as a matter of routine, evaluates all of its individual activities such as workshops but there has been no recent assessment of the effectiveness of CELT staff development activities as a whole nor has there been a review, with external input, of CELT as a whole.   Nonetheless, it is clear that the services provided, including one-to-one tutoring and personal support, are highly regarded.

9.10   The redevelopment of the University's strategic plan, and the incorporation of a teaching and learning plan as suggested in section 3, provide an opportunity for aligning staff development activities with the University's strategic goals.   The teaching and learning plan will also be a potential reference point in the allocation of teaching development grants.   In addition, CELT can provide expertise for the development and delivery of an e-learning strategy and ensure that it has an explicit pedagogical foundation (section 5).

10.   STUDENT PARTICIPATION

10.1   HKUST students are represented across key University governance groups including Council and Senate so there is opportunity for the student voice to be heard at the highest level of the institution. There are also student members on committees concerned with quality such as the CTLQ, the CUS and the CPS as well as on committees involved in provision of campus services such as catering and the halls of residence.   The CTLQ has published a good practice guide for student participation in quality assurance emphasising communication, monitoring and the need to close the feedback loop.

10.2   Each department has a Staff-Student Liaison Committee that is responsible for dealing with matters of concern.   The Panel learned that these liaison groups are useful for

resolving matters raised by students. There is also a Student/Central Services Liaison Group with the role of engaging students in discussion of support and service units. An example of good practice in responding to student feedback is the action flowing from the 2007 survey of the quality of library services which recommended the introduction of an extension of Sunday opening hours and establishment of quiet study areas within the Library facility.

10.3   In addition to the student feedback gleaned through SFQ and SESQ, some departments administer their own surveys and conduct focus groups.

10.4   The Panel met with the leaders of student organisations and learned that these organisations are many and varied and also appear to be active in providing students with the opportunity to participate in the social and cultural life on campus.

10.5   The Panel is satisfied that students have appropriate and sufficient means to participate in decision making at all levels of the institution, and that the student voice is heard.

11.   ACTIVITIES SPECIFIC TO RESEARCH DEGREES

11.1   The University has approximately 1,200 students enrolled in MPhil and PhD programmes, of whom over half are enrolled in the School of Engineering. The students are predominantly from Hong Kong and the mainland but the University has aspirations to attract students from other regions. A strategy introduced recently has had some modest success in this regard.

11.2   The University has an institution-wide approach to postgraduate research education, with formal requirements set out in a Handbook for Postgraduate Studies which includes specification of the role of coursework and qualifying examinations. The objectives for research postgraduate education include the development of higher-order generic intellectual skills, research skills, and knowledge at the forefront of the discipline.

11.3   Proposals for new or amended programmes follow a pathway from the originating department through the relevant School to the CPS, which makes recommendations to Senate. Programmes are monitored through the CPS working with school Associate Deans for Postgraduate Studies and postgraduate coordinators in departments.

11.4   Students attend a formal University-level orientation designed to complement school and departmental inductions, and professional development is available through CELT. Students can obtain financial support to present papers at international conferences, and in many disciplines there are opportunities to spend time in overseas research institutions and universities. These opportunities are usually arranged through the students' supervisors.

11.5   Assessment of enrolled students is based on a qualifying examination and submission of an Annual Report compiled by both student and supervisor. These reports are reviewed by the student's Thesis Supervision Committee, by the Departmental Postgraduate Committee and by the research-student section of administration, with follow-up in cases of unsatisfactory progress or if a systemic issue is evident.   The

postgraduate coordinators and Associate Deans are available to handle complaints or grievances that cannot be resolved through the annual reporting system.

11.6 About 95% of students receive studentships and housing subsidies and also work as TAs provided they have reached a required threshold of language competence. As indicated earlier (section 9), the TAs are coordinated by the TA Coordinators who play an important role in the training of their fellow TAs.

11.7 Language support is provided where necessary by the Language Center and by Communication Tutors located in each of the Schools who assist students with academic writing for their theses.

11.8 The Panel considers that the University's policies on the administration of postgraduate research programmes, including the monitoring of student progress, provide a robust quality assurance framework for postgraduate research education. The Panel examined one doctoral programme in depth and was satisfied that in that programme the quality assurance processes set out in the University's policies are being consistently applied.

11.9 The Panel was impressed by the extensive support provided to research students. Students in the programme examined by the Panel reported that the facilities and the support they receive on a day-to-day basis are very satisfactory and that the intellectual climate in their schools is productive for their work.

> **Commendation 7**
>
> **The QAC commends HKUST for its quality assurance processes for research postgraduate programmes and for the extensive support it provides to research students.**

11.10 The final assessment requires a thesis and an oral examination. PhD thesis examination committees include an external examiner. Around 20% of external examiners come from outside Hong Kong and the mainland, a proportion that has remained relatively steady over some years. In view of HKUST's international research aspirations it may wish to take steps to increase this proportion. It may also wish to review the practice of allowing the student's supervisor a vote in the examination committee.

12. CONCLUSION

12.1 HKUST is undergoing a period of significant change. Some changes have been externally imposed – most notably the introduction of the four-year curriculum and the move to OBE, both of which the University is pursuing with vigour. Other changes derive from the University's self-review for this audit – the Panel saw clear evidence of action and progress in areas of identified weakness. In the medium term the University can expect yet more changes as a result of redeveloping its strategic plan. The Panel is confident that HKUST has the energy to embrace such change and achieve its objectives.

12.2   Subject to the comments in this Report, the Panel considers that HKUST has appropriate procedures in place to pursue its stated purposes in teaching and learning, that it engages in activities designed to achieve those purposes, and that there is verifiable evidence to show that the purposes are being achieved. It trusts that this Report will help the University to continue to enhance the quality of its teaching and learning.

APPENDIX A: THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY (HKUST)
[Extracted from the Institutional Submission]

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, Section 4, 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.

Organisational Structure
The University structure is described as bi-cameral. Ultimate 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 oversight 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 Vice Presidents and the University Administrative Committee.

The University has three Branches, each under a Vice President – Academic Affairs; Research and Development; and Administration and Business. The Vice President – Academic Affairs is also the Deputy to the President and acts as Provost.

The University Senate maintains active oversight of the curriculum, academic standards and educational quality. Key Senate committees include the Committee on Undergraduate Studies (CUS), the Committee on Postgraduate Studies (CPS), and the Committee on Teaching and Learning Quality (CTLQ).

Four Schools constitute the academic core of the University – Science, Engineering, Business and Management, and Humanities and Social Science.

Programmes of Study
The University offers undergraduate programmes in 17 discipline-based departments: five in Science, six in Engineering, and six in Business and Management. The School of Humanities and Social Science offers undergraduates general education courses for intellectual breadth, and will launch a BSc programme with limited enrolment in September 2011. All undergraduate programmes are full-time and lead to honours degrees.

All four Schools offer postgraduate programmes – currently 43 research postgraduate programmes, leading to PhD and MPhil degrees, as well as self-funded taught postgraduate programmes leading to MBA, MSc and MA degrees.

Apart from the Executive MBA, the language of instruction for all programmes is English, and the curriculum is organised through a credit-unit system.

Staff and Students Numbers
As at 28 February 2009, the University had 5,853 undergraduate and 1,216 postgraduate students in UGC-funded programmes. Enrolments in self-financed programmes accounted for a further 1,872 students. The teaching staff (as at January 2009) comprises 422 regular and 61 visiting staff to give a total of 483. 100% of teaching staff members have doctorates.

Revenue and Estate
Consolidated income for the year ending 30 June 2008 was HK$2,780 million of which HK$1,681 million (60%) came from government subvention and HK$589 million (21%) from tuition, programmes and other fees.

APPENDIX B: INSTITUTIONAL RESPONSE TO THE AUDIT FINDINGS

HKUST warmly welcomed the opportunity presented by the QAC Audit to demonstrate and enhance the high quality of its educational programs and its robust culture of frank self-evaluation – a culture that has been the basis for the University's rapid advance.

We were therefore very pleased that the Panel found "that students hold HKUST's teaching staff in high regard and that the staff, in their turn, are committed to supporting the students" (paragraph 9.1), and that the Panel observed "a strong quality assurance culture with robust processes in place" and is confident that the University "will continue to enhance the quality of its teaching and learning" (Executive Summary).

Educational Quality

A priority for excellent teaching

As a research university, HKUST especially values the close relationship of its highly qualified, international faculty with students. The Panel observed "that there is a strong sense of community among and between staff and students" and that "data from surveys indicate that students have a high incidence of face-to-face discussions with professors and instructors" (paragraph 5.2, **Commendation 2**). As the Panel notes, this linkage is sustained by a commitment to "an extensive and effective system of advising and mentoring" (paragraph 5.3, **Commendation 3**).

Universities that value scholarship and research are sometimes accused of neglecting teaching. It is therefore very important to HKUST that the Panel confirmed that "in recent years the University has increased its emphasis on teaching performance" (paragraph 9.5), and that "the Panel was persuaded that the University takes teaching performance seriously in substantiation and promotion" (paragraph 9.6).

The University's strong commitment to excellent teaching is reinforced by well designed support for academic staff. The Panel "heard of many instances of good practice in teaching and learning" (paragraph 3.14, **Affirmation 3**) and notes "a rich array of resources for staff to improve their teaching and technology skills. …it is clear that the services provided, including one-to-one tutoring and personal support, are highly regarded" (paragraph 9.9).

The Panel singled out the support of new academic staff and notes that new academics quickly adapt to working at HKUST. Preparation for Teaching Assistants is also commended. This is particularly important to us, given new recruitment for the 334 transition (paragraph 9.3, **Commendation 5** and **Commendation 6**).

HKUST has also remained a leader in the use of IT tools in education and was pleased that the Panel noted "…an impressive number of on-going initiatives to extend the use of technology in teaching and learning, including remote video capture of lectures; a Personal Response System (PRS) to allow immediate feedback during large scale lectures; and mobile phone access to University information through an iPhone application" (paragraph 5.8).

Reinventing undergraduate education

HKUST has been working hard to develop an undergraduate educational experience that makes

academic excellence a central goal, while providing opportunities for intellectual breadth and personal development. The basis of this effort is a statement of graduate attributes: ABC LIVE. The Panel confirmed that ABC LIVE is "a succinct and appropriate statement of graduate attributes" and that "ABC LIVE…is clearly a significant driver of educational development" (paragraph 2.4, **Commendation 1**) and the Panel "was impressed by widespread progress in mapping ABC LIVE onto the curriculum" (paragraph 4.3, **Affirmation 5**).

The University has been building on its research base to deliver a more interdisciplinary and inquiry-driven education. The Panel understood the importance of this effort and was able to affirm the priority it is being given (paragraph 4.6, **Affirmation 4**).

The Panel has also affirmed our efforts to provide students with a developmental and holistic education (paragraph 5.6, **Affirmation 7** and paragraph 6.4, **Affirmation 9**). Key elements include: internships, about which the Panel heard positive reports and found the "potential to build on the current good relationships with alumni and employers" (paragraph 6.2, **Affirmation 8**); an extensive international exchange program commended for its scale and management (paragraph 6.3, **Commendation 4**); a vibrant residential campus-life, about which the Panel heard positive comments from students (paragraph 5.2, **Commendation 2**); and the high priority for achieving the English language competence of graduates" (paragraph 4.9, **Affirmation 6**).

Postgraduate education

A special feature of HKUST's mission is postgraduate education. Given this we were gratified by the Panel's strong endorsement of the quality of programs for research students.

The Panel was "impressed by the extensive support provided to research students" and notes that "the facilities and the support they receive on a day-to-day basis are very satisfactory and that the intellectual climate in their schools is productive for their work". The Panel found that the "University has an institution-wide approach to postgraduate research education" and that "the objectives for research postgraduate education include the development of higher-order generic intellectual skills, research skills, and knowledge at the forefront of the discipline" (paragraphs 11.2 and 11.9, **Commendation 7**).

Several features of research-student education particularly attracted the Panel's attention, finding that "students can obtain financial support to present papers at international conferences, and in many disciplines there are opportunities to spend time in overseas research institutions and universities" (paragraph 11.4), and that language support is provided where necessary (paragraph 11.7). Since most research students also gain valued experience as Teaching Assistants (TAs), the commendation for our training of Teaching Assistants and the effectiveness of the system of TA Coordinators is very welcome (**Commendation 6**).

Quality Assurance

As the Panel notes the University undertook "a rigorous and frank process of self-review in preparation for the QAC audit" and "identified a number of areas in which improvements were needed" (paragraph 1.9). The Panel has broadly concurred with the outcome of this self-review exercise and has made recommendations in a number of areas where plans for improvement are already well underway: **Recommendation 1:** benchmarking; **Recommendation 2:** closing the feedback loop with students; **Recommendation 3:** taking a more strategic approach to the

development of IT in education; **Recommendation 4:** enhancement of annual reports on teaching and learning; **Recommendation 5:** external review; and **Recommendation 8:** clarification of expectations of teaching performance.

The Panel's support is welcome, as is the observation that the University's openness "gives confidence that the quality assurance systems at HKUST are well embedded in the culture and that the University will continue to work on those aspects identified as needing attention" (paragraph 1.9).

The Panel has also suggested that there might be further development of institutional student assessment policy (**Recommendation 6**). While this development is ongoing in the context of the implementation of the learning–outcomes approach, the recommendation is a timely reminder that more traditional concerns should not be overlooked.

Since 2006, the University has moved away from a policy of grading-to-a-curve to grading based on students' demonstrated achievements of learning outcomes. Historical experience with course-grade distributions is made available, but only for information, not as "recommended bands". The Panel has called on the University to reintroduce grading-to-a-curve (**Recommendation 7**). The University is proud of its reputation for high academic standards, standards that are confirmed by academic accreditation, external review, annual benchmarking with course grades gained by HKUST students on exchange, and the experience of a very qualified international faculty. HKUST remains confident in its arrangements for course grading, and strongly believes that maintaining academic standards is consistent with course grades that reflect students' achievements.

Management and Planning

HKUST is engaging in an effort to enhance the linkage of its strategic thinking with rolling plans and resource allocation. We are also broadening the range and increasing the impact of measures of performance. Given this we were pleased that the Panel was able to affirm "the intention to redevelop the University's strategic plan" and noted that increased support for the analysis of institutional data "is a significant step towards achieving a culture in which data are routinely used for planning and decision making" (paragraph 3.6, paragraph 3.12, **Affirmation 1**, and **Affirmation 2**).

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The University has benefited greatly from the Audit process, especially the opportunity it presented for self-review. We have already moved forward on the issues that emerged in the self-review, in line with the Audit Panel's judgment that "HKUST has appropriate procedures in place to pursue its stated purposes in teaching and learning, that it engages in activities designed to achieve those purposes, and that there is verifiable evidence to show that the purposes are being achieved" (paragraph 12.2).

APPENDIX C: ABBREVIATIONS, ACRONYMNS AND DEFINITIONS

ADP	Academic Development Proposal
APR	Annual Programme Report
CELT	Center for Enhanced Learning and Teaching
CPS	Committee on Postgraduate Studies
CTLQ	Committee on Teaching and Learning Quality
CUCE	Committee on Undergraduate Core Education
CUS	Committee on Undergraduate Studies
DeanUG	Dean of Undergraduate Education
HKUST	The Hong Kong University of Science and Technology
IAS	Institute for Advanced Study
IELTS	International English Language Testing System
ILO	Intended Learning Outcome
IPO	Interdisciplinary Programs Office
OBE	Outcome-Based Education
QAC	Quality Assurance Council
SCCPE	University Administrative Committee's Sub-committee on Continuing and Professional Education
SESQ	Student Engagement and Satisfaction Questionnaire
SFQ	Student Feedback Questionnaire
TA	Teaching Assistant
TDG	Teaching Development Grant
UAC	University Administrative Committee
UGC	University Grants Committee
UROP	Undergraduate Research Opportunities Program
WG4Y	Working Group on the Four-year Degree Curriculum

APPENDIX D: HKUST AUDIT PANEL

The Audit Panel comprised the following:

Professor Andrew Lister (Panel Chair)
Consultant; Emeritus Professor, University of Queensland

Professor Joseph Cheng
Chair Professor of Political Science, City University of Hong Kong

Sir Graeme Davies
Vice-Chancellor, University of London

Professor Carmel McNaught
Director, Centre for Learning Enhancement And Research, The Chinese University of Hong Kong

Mr Ralph Wolff
President and Executive Director, Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges, USA

Mr Wong Kwan Yu
Principal, Fukien Secondary School and Member of the Education Commission

Audit Coordinator

Emeritus Professor Mairéad Browne
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 15 September 2010)

Mr Philip CHEN Nan-lok, SBS, JP (Chairman)	Managing Director, Hang Lung Group Limited and Hang Lung Properties Limited, Hong Kong
Mr Roger Thomas BEST, JP	Former Partner, Deloitte Touche Tohmatsu
Dr Judith EATON	President, Council of Higher Education Accreditation, USA
Professor Richard HO Man-wui, JP	Honorary Professor, Department of Chinese Language and Literature of The Chinese University of Hong Kong, Hong Kong
Professor Richard HO Yan-ki	Professor (Chair) of Finance, City University of Hong Kong, Hong Kong
Professor Edmond KO, BBS, JP	Adjunct Professor of Chemical and Biomolecular Engineering, The Hong Kong University of Science and Technology
Sir Colin LUCAS	Former Vice-Chancellor, University of Oxford, United Kingdom
Sir Howard NEWBY	Vice-Chancellor, University of Liverpool, United Kingdom

Ex-officio Member

Mr Michael V STONE, JP	Secretary-General, UGC

Secretary

Mrs Dorothy MA	Deputy Secretary-General (1), UGC