
SOME THOUGHTS OF HIGHER EDUCATION IN THE NEW ERA

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PREAMBLE

In recent years, higher education around the world has rapidly developed, with the total number of degree students more than doubled in a decade's time. Subsequently, there have been opinions from the public on the quality of graduates, the function and effectiveness of universities for the community. There are also pertinent issues for discussions, including the importance of teaching versus research, and the utilization of R&D results for the benefit of the society.

As of common knowledge, the 21st century is a new era of knowledge-based economy. Information technology cannot replace the hard-core technologies, but it can enable the further development of commerce, entertainment and cultural activities. As a matter of fact, it has already affected our daily life and effected overall globalization. Being the major breeding ground of high level manpower and new knowledge, universities have the responsibility of providing leadership and support in these new endeavours.

Universities must now face the significant change of social and economic infrastructure. This, compounded by other rapid developments of the whole world, has made even more people to be aware of the importance of education and manpower training for the preparation of the future.

This paper intends to provide an overall view of higher education. Some details of the approach adopted by The Hong Kong Polytechnic University in pursuing its goals are provided in the Appendix.

A BRIEF REVIEW

The origin of universities could be dated back to Europe of around the twelve century. During those days, the sole purpose of universities was to pass on knowledge to the next generation and to breed a limited number of learned people. In the 18th and 19th centuries, the Industrial Revolution had created big wealth, and had induced fundamental change of social structure and keen competition amongst industrial countries. During the early 20th century, universities had already taken on the additional role of doing research in creating new knowledge, as well as carrying out teaching to young people. Those elite universities would still pursue the supremacy

of knowledge for its own sake and its own end. In the mid 20th century, advanced industrial countries in Europe and North America had tremendously enlarged the base and scale of tertiary education due to the need of economic growth as well as the desire of the people. At the end of the 20th century, new knowledge and technology had become a very important factor for economic growth. As an example, R&D has been a major element contributing to the vast economic growth of the United States in the last few decades. It is well known that universities play an important role for the creation of new knowledge. Hence the community at large has increasingly high expectations of universities.

THE PRESENT POSITION

As a result of the rapid pace of development and globalization, modern universities have multiple functions and have to be interactive with the community, industry and commerce. In addition to teaching and doing research, universities are also expected to provide services for the community. Such would include helping Government in the formulation of national policies, providing consultancy service to the industry and commerce, and acting as spawning ground for innovative enterprises. The science park of Cambridge University and the Silicon Valley of California are typical examples of success. Due to the community need there is a tendency for tertiary education to become more professional oriented, and to go for applied as well as fundamental research. Traditionally the type of knowledge to be passed onto students is rather explicit, articulated, codified or systematic. Hence such certain and objective knowledge can readily be presented in print, and in modern time on the Internet. University teachers are more used to such knowledge (the know-what) and to assess students of such information in examinations. In the context of a modern world, there is also the tacit knowledge (the know-how) of imagination and innovation, of design and creativity, of choice and judgement, and of decision-making and management, that has become as, or even more, important. It is a new challenge to the academic world of equipping students with both certain and objective knowledge, as well as with tacit knowledge for their future career.

Assessment methods of students also need to be changed accordingly.

Whilst facing the various new expectations, universities are subjected to budget cuts, quality and efficiency monitoring, and accountability to the public. As a consequence, university management invariably would introduce measures like value-addedness, streamlining and re-engineering; empowerment and ownership; quality assurance, internal and external assessments; setting of vision, mission and values, strategic objectives; executive-led management; market shares; enterprise collaboration and strategic alliance, etc. Out of the three and even more major functions of teaching, research, community services etc., there have been some suggestions that perhaps universities should better concentrate on one to two aspects. Hence in recent years, there has been certain classification of institutions into research universities, teaching universities, comprehensive universities, liberal art universities, etc. The majority of universities are no longer mainly for the training of scholars and researchers. With a fast developing world, universities should provide special programmes to re-educate the working force for updating purpose.

LEARNING AND TEACHING – OBJECTIVE AND METHODOLOGY

Although it is a common saying that the main purpose of education is to develop the virtue, intelligence, physique, sociality and art of young people, it is also pertinent that they are well prepared for their future career and services for the community. Hence students have to be nurtured with the right sense of values, culture, personality and attributes. They have to be equipped with ability of critical thinking, creativity, language and presentation skills, IT skills, general knowledge and future developments of the world. Only through careful curriculum development, teaching by devoted academics and, exposure to real world problems and community services would be able to develop quality students. Teachers should have academic competence, a caring heart, a sense of responsibility, vision as well as awareness of changing environment. Curriculum of too narrow nature and over-emphasis on traditional examination assessments would not help to nurture good students. In the design of curricula for degree programmes, it is pertinent to provide education and professional knowledge, as well as to nurture good personality and sense of virtues for young people.

Information technology and new teaching methodologies will have large impact on learning and teaching, and the delivery of higher education. It has

enabled learning to become more student-centred. Together with the general implementation of credit-based system and the possibility of distance-learning, students can learn at their own pace, and in their preferred space and time. This has enhanced learning opportunity and increased efficiency. New cyber (virtual) universities are being developed to facilitate learning by mature learners. This will help to provide life-long learning for all people concerned.

RESEARCH AND DEVELOPMENT

These days, generation of new concepts and creation of new knowledge need not necessarily be limited to professors and research students; undergraduates may also develop fresh ideas. There are now mechanisms set up by universities for technology transfer and commercialization of R&D results. Although only about 2 percent of all patents of United States were awarded to American academic institutions in the past few years, universities are still useful to provide basic training for potential R&D personnels of industry through research programmes. In the overall process, it is vital to have close collaboration between the industry and academic sectors.

In western countries, assessment of research outputs would cover multi-areas, including refereed journal papers, patents, and actual contributions in relevant fields. Some local academics have commented on the assessment of research results in a mechanistic manner i.e., based on the number of refereed journal papers, instead of quality of research works. They also query the relevance of research being carried out with respect to the need of the local community. On the other hand, there is the opinion that as part of the international community, assessments have to be adopted with reference to international practices and established citation indices. Perhaps both views need to be considered with respect to the local context including the local strength, need of the community, and developments of the Mainland and overseas countries, with possible collaborations with them. Universities should also consider their own missions and chart their own course of actions.

INSTITUTIONAL MANAGEMENT

Different institutions have their own history, culture, mission and constraints. In general, the community has become very open and transparent. Hence local universities have become much more accountable and mindful of their own efficiency and effectiveness. Invariably, institutions have their own unique management styles. Some are more execu-

tive-led while others would adopt a more collegial approach. Universities are no more ivory towers; there are now lots of collaboration with industry, commerce and the community at large. The leadership must have vision, untiring effort and the determination to uphold traditional values and ethics in a changing world. Careful planning with proper communication and corporate strategy would help ensure good management and the successful pursuit of university mission. Good management would require a balance between monitoring and empowerment, between discipline and creativity, and between guidance and self-ownership. There should also be encouragement of both good teaching and research, and to have a good balance between them.

FUTURE DEVELOPMENT

Higher education provides quality manpower for the growth and prosperity of society. There is going to be a thorough revamp of the overall education system due to the various impacts. It is hoped that there is a joint effort to enhance the creativity, IT and language skills of young people, so that they have critical and innovative thinking, and are all genuinely bi-literate and trilingual. The secondary and tertiary sectors have to get together and ensure that there is a continuum linking the two sectors to facilitate secondary school leavers smoothly attending university studies. It would be necessary to have the common understanding by parents and teachers that examination is only a means and not the end of quality education. Students should not use all their energy to pass examinations and ignore the importance of depth learning with analytical and critical thinking. Problem-based learning may enable students to learn through handling of real problems. Teachers are there to guide rather than to dictate. The tertiary sector has to nurture young people with a sense of values, with vision and creative thinking and commitment to their community and country. We should understand that there is now a shift of learning and teaching paradigm from the old version of 'teachers teach' to the new one of 'student-centred learning and teachers facilitating students to learn'. Furthermore, it is necessary to apply theories for real applications.

It takes time for any changes and improvements to materialize. It would be necessary for higher education institutions to learn from overseas countries and yet not to follow dogmatically, but rather to improve based upon their experience. Macau has to develop its own niche areas and excel in them. Educating quality people is the best guarantee of maintaining international position and acting as a bridge between China Mainland and overseas countries.

Furthermore, universities should have close collaboration with small and medium business and industry, and more collaboration amongst themselves. Future development of higher education would rely upon good strategy and planning, effective utilization of resources, quality assurance, and support of all sectors in the community. It is time for the public, the parents, students and teachers to discard some old and obsolete traditions, to modernize their mindsets and to work together for the education of the younger generation.

APPENDIX

THE HONG KONG POLYTECHNIC UNIVERSITY

INTRODUCTION

The Mission of the University

The Hong Kong Polytechnic University, in its commitment to serve the community, continually strives towards excellence in education via quality learning and teaching. Its mission is to achieve "academic excellence in a professional context".

To achieve its mission, the University has developed its philosophy on learning and teaching, which is explicitly reflected in the University's Strategic Plan for 2001 to 2007. This was developed with Hong Kong's changing needs firmly in mind and the University's role in supporting the development of graduates who can meet those needs and embrace ongoing change and progress. To realise this philosophy, the University aims to achieve two aspects of students' education. One, which is common for university education worldwide, is the promotion of the all-round development of students through the development of generic skills and attributes. The other, which is specific to its Mission, is the development of professional competence and academic excellence in students. Under this guiding philosophy, the University strives to provide an environment that enables students to develop themselves via formal and informal curricula. Its degree programmes are noted for their application-oriented focus and relevance to the needs of society with professional accreditation being an important part of the learning outcomes.

REALISATION OF THE MISSION THROUGH QUALITY EDUCATION

To achieve its Mission, the University aims for quality in education. In order to ensure quality work, there are formal mechanisms and procedures devel-

oped for quality assurance and improvement, as well as avenues for building up a quality culture throughout the institution. Feedback from a wide range of stakeholders acts as pertinent input to ensure our quality work in the overall process. Furthermore, feedback on the implementation of students' all-round and programme specific education, as stated above, are channeled to the appropriate committees for consideration and follow-up.

A credit-based system was established in 1997/98. This has enabled programmes which were highly structured in the past to provide wider options. It has led to changes in curriculum design, and hence has allowed more choice and flexibility for students in terms of what subjects they take and when they take them, without compromising programme coherence and external requirements such as professional accreditation. In order to ensure that students are exposed to a more broad-based curriculum, the University has made use of the credit-based system by introducing schemes, major/minor options, free electives and double degree programmes into curricula. It has broadened as well as increased flexibility for students' learning.

Over the last few years, the University has more specifically articulated its commitment to facilitate the all-round development of students, so as to enhance their professional competence and to develop personal attributes important for our graduates. In order to realise this, the formal curriculum includes a mandatory requirement of general education and language (both English and Chinese) enhancement which is complemented by a wide range of optional activities in the informal curriculum; together they enrich students' learning experience and widen their vision.

With regard to learning and teaching processes, the University has placed much emphasis on professional orientation and integration of theory and practice. To achieve this, internships and industrial and clinical placements have been established over the years to complement and extend on-campus activity. Student-centred learning is encouraged and many innovative learning and teaching strategies like problem-based learning and web-based learning have been introduced to enhance this. The University's Learning & Teaching Committee (LTC), with the support of the Educational Development Centre (EDC) has been actively providing a leading role in the setting up of policies, strategies and guidelines. The LTC also provides a facilitating role in the promotion of collaboration amongst academic staff from various departments and a co-ordinating role in the development and implementation of teaching development projects.

Implementation quality has been addressed with the refinement of the overall Quality Assurance (QA) system to make it more comprehensive. While the monitoring of quality is best realised close to the service delivery front, the emphasis has been on ensuring ownership of individual departments in the implementation of quality learning and teaching. The system of Departmental Assessment has been instrumental in the monitoring and enhancement of the overall departmental performance which includes all aspects of educational work.

THE OVERALL QUALITY ASSURANCE SYSTEM

Institutional Level

At the institutional level, the key committees directly responsible for EQW and reporting to the Senate on issues of learning and teaching are: the Quality Assurance Committee (Academic Departments) (QAC(AD)), the Learning and Teaching Committee (LTC), the Academic Regulations Committee (ARC) and the Academic Planning Committee (APC), the Quality Assurance Committee (Non-Academic Units) (QAC(NAU)). These Committees play a complementary role in the overall Quality Assurance System of the University.

The QAC(AD) is responsible for drawing up (and refining) the institutional wide QA system, and overseeing its implementation at faculty and departmental levels (commencing from 2000/01, the QAC was reconstituted to focus its work on academic departments). Each department is required to compile a QA System Document. This defines its QA goals and how they are to be achieved, taking into account the nature of the disciplines and any special circumstances and development stages of a department. The QA System Document reflects a self-conviction by departments to strive for, and implement quality, rather than having an entirely standardised mechanism imposed.

The LTC is responsible for developing policies and procedures relating to the promotion of quality learning and teaching, and also for facilitating and monitoring the implementation of policies and procedures which impact directly on learning and teaching issues. It oversees and monitors the development of, for example, innovative learning and teaching methodologies, use of modern education technology, and the dissemination of good practices. It also allocates grants that have been earmarked for the improvement of learning and teaching, and monitors the progress and quality of teaching development projects. The Committee is supported, at an opera-

tional level, by Departmental Learning and Teaching Committees (DLTC's), and this has ensured that institutional policies are well-integrated with, and take account of, front-line teaching experience.

The ARC is responsible for issues relating to academic regulations and ensures that these are appropriate and consistent across faculties and departments. The Academic Planning Committee's (APC) function is the development of academic programmes, especially new programmes.

The QAC (NAU) is responsible for the QA of all non-academic units to ensure their support to academic departments and the University at various levels to achieve quality EQW.

Faculty and Departmental Level

Faculty Deans and Faculty Boards have the ultimate responsibility over quality issues in the Faculty, including the entire work portfolio of the constituent departments and their programmes. The three key processes operating at this level are:

- (i) Departmental Assessment (including validation of academic programmes);
- (ii) Annual QA Reports/Business Plans;
- (iii) Departmental Academic Advisor (DAA) System.

Programme Level

There is a well-established mechanism for validation/review of new/existing programmes to ensure their academic quality and relevance to the community. However, to streamline the process, review of existing programmes is included as part of the DA exercise; likewise the validation of new programmes is conducted in the DA if the timing can be aligned, otherwise a separate validation exercise is arranged. In addition, accreditation of academic programmes with professional bodies can also be included in the DA exercise if professional bodies agree.

Staff Level

At the individual level, the teaching evaluation mechanism conducted for all staff is the Student Feedback Questionnaire (SFQ), which is conducted for each subject taught. The results of SFQ's are conveyed back both to the Head of Department and the staff concerned. Staff are also encouraged to prepare teaching portfolios which may also be subject to peer evaluation. In addition, some departments have implemented a peer review system.

Academic staff are encouraged to adopt new and innovative teaching strategies to facilitate the learning process of students. Examples of good practices in this regard are shared across the institution through the Staff Intranet, seminars organized by the EDC.

THE QA PROCESSES/ACTIVITIES AND EXAMPLES OF GOOD PRACTICES IN THE FIVE DOMAINS OF EDUCATION QUALITY WORK

Design of Curricula

The University places emphasis on curricula that address the students' learning needs as well as the needs of individual professions and the community. Apart from professional knowledge and competence, the curricula also encourage the all-round development and life-long learning of students. Introduction of the credit-based system with the provision of schemes, major/minor option and free electives has enabled flexibility in curricula design to cater for the above expectations.

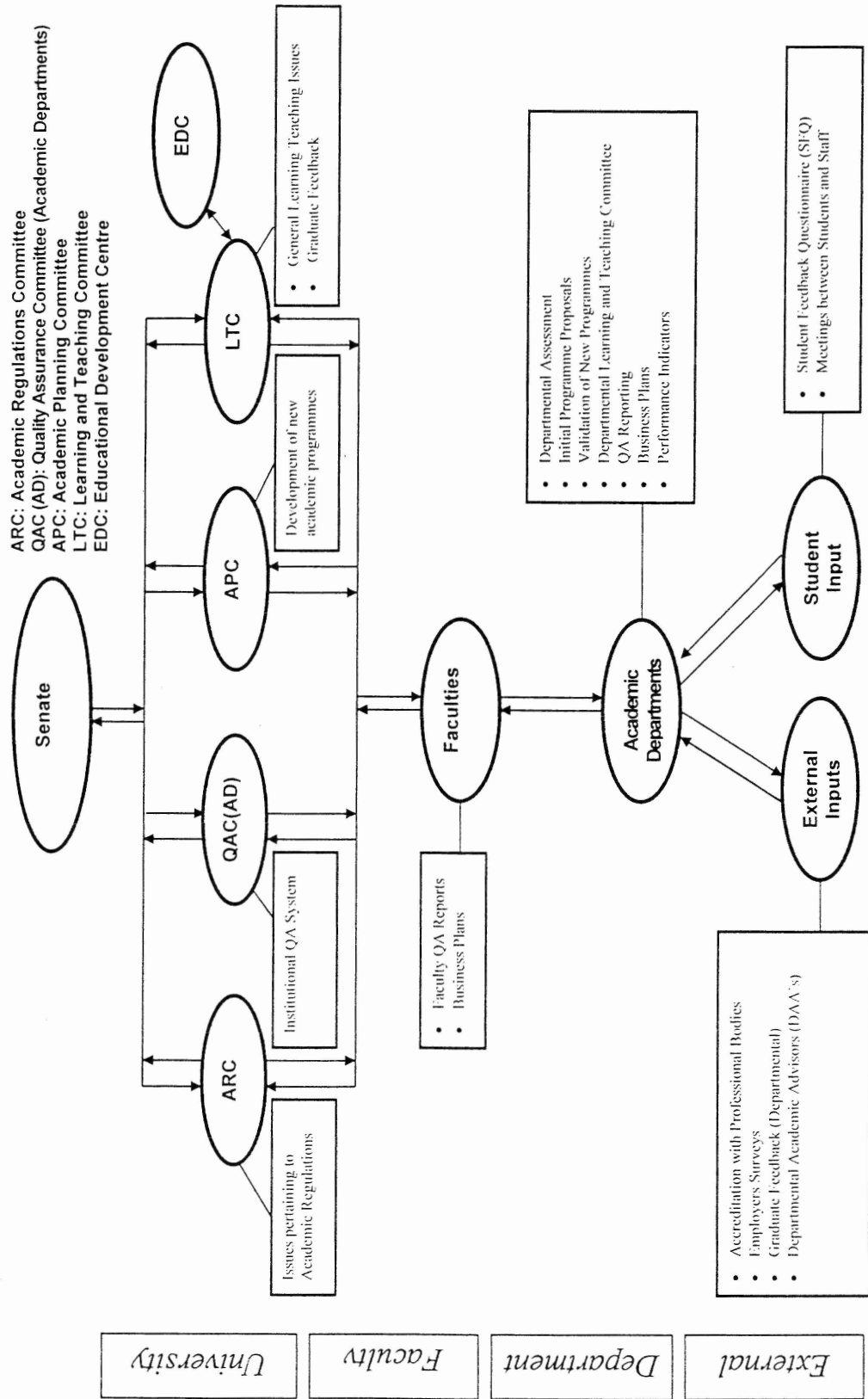
Design of Learning and Teaching Processes

The University is committed to the development of student-centred learning to support the students' development of independent and life-long learning skills. It is being institutionalised into the culture of the University. It is a policy of the University that academic staff have as their prime responsibility quality learning and teaching. The University's LTC provides overall guidance, promotes improvement of learning and teaching methodologies and encourages the exploration of different approaches to learning. There are both formal and informal meetings and seminars for staff, and between staff and students, in departments and faculties to discuss implementation results of the various learning and teaching processes for sharing, further improvement and refinement. The EDC facilitates forums and seminars to provide insight, to discuss, to disseminate information and to provide support in all these endeavours.

In the design of learning and teaching processes, an integrative approach is adopted in the development of curricula. Student-centred learning strategies have been used to facilitate students to achieve their learning potential, while developing their innovative thinking, and problem solving abilities. This has been done by creating an environment that provides appropriate experience for students to discover and construct knowledge for themselves while the teacher, as the facilitator, provides guidance and open communication. Facilities have also been developed to enhance students' learning in addition to formal teaching.

To provide the all-round education of students, learning activities outside formal classrooms are provided by various academic departments and other teaching support units. Examples of these learning activities include cultural activities and exhibitions

Figure 1 INTEGRATION OF KEY QA PROCESSES RELATED TO LEARNING AND TEACHING



organized by the Culture Promotion Committee, overseas exchange programmes, visits and placements, supported and/or organized by faculties and/or departments/centres. Summer courses in Beijing and Shanghai are organized for students to study Putonghua, Chinese Culture and History. All these activities provide students with a wide exposure to enhance different aspects of their all-round development particularly in the areas of global outlook, critical and creative thinking, social and national responsibility, cultural appreciation, leadership, and life long learning.

Design of Student Assessment and Use of Assessment Results

The design of assessment is an integral part of curriculum development, and an integrative approach is adopted to ensure that assessment methods address and are in alignment with learning objectives, and that they appropriately indicate the level of ability in meeting intended outcomes.

At the planning stage, Departmental Programme Planning Committees and/or subject teams meet to discuss assessment methods to ensure that they are appropriate to the programme/subject objectives, and that they measure intended outcomes. To address the different learning objectives, a range of assessment methods is employed to ensure such alignment. Examples of different methods used at the University are continuous assessment, reflective learning strategies used by health-care professional programmes such as nursing, optometry, radiography, and social work, closed and open-book examinations, student peer and self-assessment, and the use of IT-based assessment. Opinions of students are sought with regard to assessment methods, format and frequency of assessment, and any perceived problems. Follow-up actions are then taken by the Programme Committee as necessary.

The overall quality assurance of programme implementation is achieved via formal QA processes such as Departmental Assessment, Departmental Academic Advisors, Annual Business Plans and QA Reports. These processes require departments to reflect on and evaluate the quality of the implementation of the various aspects of education delivery, to identify strengths and areas for improvement, and also to set goals and objectives. The teaching performance of individual teachers is monitored via the University's staff appraisal system, and corrective action is taken when shortcomings are identified.

To ensure and improve the quality of teaching, it is a policy of the University that all staff members new to teaching are required to attend staff development courses organized by the EDC, namely "Pre-

paring to Teaching" and "Introduction to University Teaching". These courses provide participants with theories and practice for effective teaching, and also act as a forum for open discussion and sharing of experience.

There are mechanisms and processes in place to solicit feedback from students on various aspects of learning and teaching. These include SFQ's, programme/subject evaluation from students, graduate surveys, student-staff consultative meetings, and meetings between Heads of Department and students. The feedback is reviewed and considered by individual teachers/programmes/subject teams to ascertain quality teaching.

Allocation of Resources to Education Quality Work

The University is committed to quality learning and teaching, and appropriate resources have been allocated to the various aspects of education quality work to that effect.

RESEARCH

Research Postgraduate education is of immense importance to the University because of its impact internally (it invigorates the University's research activity) and externally (it aids the formation of a knowledge-based society). The topics of PhD/MPhil study can cover the scholarship of discovery, the scholarship of integration and the scholarship of application, with each carrying an approximately equal share of the research degree topics. Furthermore, in keeping with the mission to undertake mostly applied research, the policy is to assign PhD/MPhil topics to students who have the potential to carry out applied research to benefit the community in the short to medium term.

The administration of research postgraduate programmes has to a large extent been devolved to the Research Committee (RC) by the Senate. Very important policy issues related to RPg programmes (e.g. compulsory coursework in PhD/MPhil programmes) continue to be discussed in the Senate after they have been proposed by the RC, and certain other less critical issues are presented to Senate members for information. However, in general, it is the RC that deals with issues relating to RPg programmes, in particular: a) determination of policy; b) consideration of matters to do with rules, regulations and procedures, and their implementation; c) confirmation of examination results and PhD/MPhil awards; d) resource issues, including allocating a research student quota to departments; e) setting the quality framework for research-degree activities; and f) monitoring the support services provided for research students.