

Imperial College of Science, Technology and Medicine

JUNE 2005

Preface

The Quality Assurance Agency for Higher Education (QAA) exists to safeguard the public interest in sound standards of higher education (HE) qualifications and to encourage continuous improvement in the management of the quality of HE.

To do this QAA carries out reviews of individual HE institutions (universities and colleges of HE). In England and Northern Ireland this process is known as institutional audit. QAA operates similar but separate processes in Scotland and Wales.

The purpose of institutional audit

The aims of institutional audit are to meet the public interest in knowing that universities and colleges are:

- providing HE, awards and qualifications of an acceptable quality and an appropriate academic standard, and
- exercising their legal powers to award degrees in a proper manner.

Judgements

Institutional audit results in judgements about the institutions being reviewed. Judgements are made about:

- the confidence that can reasonably be placed in the soundness of the institution's present and likely future management of the quality of its programmes and the academic standards of its awards
- the reliance that can reasonably be placed on the accuracy, integrity, completeness and frankness of the information that the institution publishes, and about the quality of its programmes and the standards of its awards.

These judgements are expressed as either **broad confidence**, **limited confidence** or **no confidence** and are accompanied by examples of good practice and recommendations for improvement.

Nationally agreed standards

Institutional audit uses a set of nationally agreed reference points, known as the 'Academic Infrastructure', to consider an institution's standards and quality. These are published by QAA and consist of:

- *The framework for higher education qualifications in England, Wales and Northern Ireland (FHEQ), which include descriptions of different HE qualifications*
- *The Code of practice for the assurance of academic quality and standards in higher education*
- subject benchmark statements, which describe the characteristics of degrees in different subjects
- guidelines for preparing programme specifications, which are descriptions of the what is on offer to students in individual programmes of study. They outline the intended knowledge, skills, understanding and attributes of a student completing that programme. They also give details of teaching and assessment methods and link the programme to the FHEQ.

The audit process

Institutional audits are carried out by teams of academics who review the way in which institutions oversee their academic quality and standards. Because they are evaluating their equals, the process is called 'peer review'.

The main elements of institutional audit are:

- a preliminary visit by QAA to the institution nine months before the audit visit
- a self-evaluation document submitted by the institution four months before the audit visit
- a written submission by the student representative body, if they have chosen to do so, four months before the audit visit
- a detailed briefing visit to the institution by the audit team five weeks before the audit visit
- the audit visit, which lasts five days
- the publication of a report on the audit team's judgements and findings 20 weeks after the audit visit.

The evidence for the audit

In order to obtain the evidence for its judgement, the audit team carries out a number of activities, including:

- reviewing the institution's own internal procedures and documents, such as regulations, policy statements, codes of practice, recruitment publications and minutes of relevant meetings, as well as the self-evaluation document itself
- reviewing the written submission from students
- asking questions of relevant staff
- talking to students about their experiences
- exploring how the institution uses the Academic Infrastructure.

The audit team also gathers evidence by focusing on examples of the institution's internal quality assurance processes at work using 'audit trails'. These trails may focus on a particular programme or programmes offered at that institution, when they are known as a 'discipline audit trail'. In addition, the audit team may focus on a particular theme that runs throughout the institution's management of its standards and quality. This is known as a 'thematic enquiry'.

From 2004, institutions will be required to publish information about the quality and standards of their programmes and awards in a format recommended in document 03/51, *Information on quality and standards in higher education: Final guidance*, published by the Higher Education Funding Council for England. The audit team reviews progress towards meeting this requirement.

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Summary

Introduction

A team of auditors from the Quality Assurance Agency for Higher Education (QAA) visited Imperial College of Science, Technology and Medicine (known as Imperial College London) (the College) from 6 to 10 June 2005 to carry out an institutional audit. The purpose of the audit was to provide public information on the quality of the opportunities available to students and on the academic standards of the College's awards.

To arrive at its conclusions the audit team spoke to members of staff throughout the College, to current students, and read a wide range of documents relating to the way the College manages the academic aspects of its provision.

The words 'academic standards' are used to describe the level of achievement that a student has to reach to gain an academic award (for example, a degree). It should be at a similar level across the UK.

Academic quality is a way of describing how well the learning opportunities available to students help them to achieve their award. It is about making sure that appropriate teaching, support, assessment and learning opportunities are provided for them.

In institutional audit, both academic standards and academic quality are reviewed.

Outcome of the audit

As a result of its investigations, the audit team's view of the College is that:

- broad confidence can be placed in the soundness of the College's current and likely future management of the quality of its programmes and the security of its academic awards.

Features of good practice

The audit team identified the following areas as being good practice:

- the use of a broad range of external peers, including industrialists and academic staff from institutions in Europe, in periodic review of undergraduate programmes
- the effectiveness of the student on-line evaluation system, SOLE, which has the potential to contribute to quality assurance and enhancement. The team noted, in particular, the engagement of students with the process and the use of results in the Personal Review and Development Planning and promotion processes
- the recognition accorded to teaching, especially in the promotions exercise
- the College's approach to outreach activity, exemplified by the Innovative Scheme for Post-docs in Research and Evaluation, INSPIRE, project and the collaboration with Thames Valley University
- the effective use of automated testing and CATE (continuous assessment tracking engine) to provide rapid feedback to students in the Department of Computing
- the approach to preparation of, and support for, students in the Department of Physics undertaking a year of study abroad.

Recommendations for action

The audit team also recommends that the College consider action in a number of areas to ensure that the academic quality and standards of the awards it offers are maintained.

The audit team advises the College to:

- extend its current survey and review of variability in Pass/Fail boundaries at postgraduate level to cover the whole of its provision to establish a common set of Pass marks to be applied to existing programmes so as to achieve early convergence of requirements and consistency of approach, and to demonstrate equity of treatment of students across the schools and faculties

- in the context of *the framework for higher education qualifications in England, Wales and Northern Ireland* (FHEQ), review its approach to programme structures to provide assurance of organised academic progression through the curriculum, with particular reference to the balance and scheduling of the H and M-level course elements in years three and four of undergraduate programmes.

It would be desirable for the College to:

- review its approach to approval of undergraduate programmes to confirm the purpose, scope and scheduling of each of the two stages
- in developing its approach to annual monitoring, draw on existing good practice in departments to achieve consistency in the extent of the analysis and areas covered in the reports from departments; a more evaluative approach to consideration of the reports within studies committees would also contribute to the College's processes for the quality assurance and enhancement of its provision
- in refining its approach to the formulation of programme specifications, identify and draw on existing good practice within its provision, with particular attention to the specification of intended learning outcomes
- establish a systematic and consistent approach across the College to the coding of course elements to designate levels of study
- review the approach to checking the accuracy of material for the public domain produced by departments.

Summary outcomes of discipline audit trails

Bioengineering; computing; physics, and civil and environmental engineering

The audit team also looked in some detail at programmes in the four discipline areas of bioengineering, computing, physics, and civil

and environmental engineering to find out how well the College's systems and procedures were working at programme level. The College provided the team with documents, including student work, and members of the team spoke to staff and students from each discipline area. As well as its findings supporting the overall confidence statements given above, the team was able to state that the standard of student achievement in the programmes was appropriate to the titles of the awards and their place within the FHEQ, published by QAA. The team was also able to state that the quality of learning opportunities was suitable for programmes of study leading to the awards.

National reference points

To provide further evidence to support its findings the audit team also investigated the use made by the College of the Academic Infrastructure that QAA has developed on behalf of the whole of UK higher education. The Academic Infrastructure is a set of nationally agreed reference points that help to define both good practice and academic standards. The findings of the audit suggest that the College has responded appropriately to the subject benchmark statements, programme specifications and the *Code of practice for the assurance of academic quality and standards in higher education*, published by QAA, while noting that there remains some work to be undertaken in relation to the FHEQ.

In due course, the institutional audit process will include a check on the reliability of the teaching quality information set published by institutions in the format recommended in the Higher Education Funding Council for England's (HEFCE) document 02/15, *Information on quality and standards in higher education* and 03/51, *Final guidance*. At the time of the audit, the College was alert to the requirements set out in document HEFCE 02/15 and to the implications of document HEFCE 03/51, and was moving in an appropriate manner to fulfil its responsibilities in this respect.

Main report

Main report

1 An institutional audit of Imperial College of Science Technology and Medicine (known as Imperial College London) (the College) was undertaken during the week commencing 6 June 2005. The purpose of the audit was to provide public information on the quality of the College's programmes of study and on the discharge of its responsibility for academic awards.

2 The audit was carried out using a process developed by the Quality Assurance Agency for Higher Education (QAA) in partnership with the Higher Education Funding Council for England (HEFCE), the Standing Conference of Principals (SCOP) and Universities UK (UUK), and has been endorsed by the Department for Education and Skills. For institutions in England, it replaces the previous processes of continuation audit, undertaken by QAA at the request of UUK and SCOP, and universal subject review, undertaken by QAA on behalf of HEFCE, as part of the latter's statutory responsibility for assessing the quality of education that it funds.

3 The audit checked the effectiveness of the College's procedures for establishing and maintaining the standards of its academic awards; for reviewing and enhancing the quality of the programmes of study leading to those awards, and for publishing reliable information. As part of the audit process, according to protocols agreed with HEFCE, SCOP and UUK, the audit included consideration of examples of institutional processes at work at the level of the programme, through discipline audit trails (DATs), together with examples of those processes operating at the level of the institution as a whole.

4 The scope of the audit encompassed all of the College's provision and collaborative arrangements leading to its awards.

Section 1: Introduction: the Imperial College of Science, Technology and Medicine

The institution and its mission

5 The College, established in 1907 by Royal Charter, is an independent institution within the University of London. A series of mergers with St Mary's Hospital Medical School (1988), the National Heart and Lung Hospital (1995), Charing Cross and Westminster Medical School and the Royal Postgraduate Medical School (1997), the Kennedy Institute of Rheumatology (2000), and Wye College (2000) have resulted in the present academic structure. The College operates on a number of campuses with a main site located in South Kensington and additional facilities at the Charing Cross, Chelsea and Westminster, Hammersmith, Northwick Park, Royal Brompton and St Mary's Hospitals. There is also provision at Silwood Park near Ascot and the Wye Campus near Ashford in Kent.

6 The College awards undergraduate and postgraduate taught degrees of the University of London. Within the general framework for quality and standards of the University, the College has responsibility for determining the curricula, methods of assessment and regulations for the award of taught degrees. The College operates within the University of London regulations in respect of research degrees. The College was granted taught and research degree awarding powers in 2003 but, at the time of the audit, had not yet exercised these powers and was keeping the matter under review.

7 At the end of 2004 the College had 11,152 full-time, and 904 part-time, mainly postgraduate, students. Approximately 70 per cent were studying for first degrees and nearly 30 per cent were postgraduates. The total number of non-UK nationals (including those from EU countries) was 4,696, 42.1 per cent of the total population, and the proportion of overseas students (as defined for fee purposes, thus excluding citizens of EU countries) was 26.5 per cent.

8 The College consists of four faculties: Engineering; Life Sciences; Medicine; and Physical Sciences; and the Tanaka Business School. The Principal of the Tanaka Business School reports directly to the Deputy Rector. The self-evaluation document (SED) provided by the College indicated that the Faculty of Life Sciences was 'in a transitional phase until August 2005'. By the time of the audit, the decision had been made to restructure the faculty, entailing the withdrawal of much of the teaching and research activity in natural sciences from the Wye Campus over a three-year period.

9 A humanities programme that offers all undergraduate students the opportunity to study a language or a humanities subject as part of their main programmes of study had just over 1,900 students enrolled in the academic year 2003-04. There are two Graduate Schools: Engineering and Physical Science (GSEPS) and Life Sciences and Medicine (GSLSM). For the purposes of this report and ease of reference, the term 'department' is used to include divisions, schools and the Centre for History of Science, Technology and Medicine, unless otherwise indicated in the text.

10 The College's Mission is 'Imperial College London embodies and delivers world class scholarship, education and research in science, engineering and medicine with particular regard to their application in industry, commerce and healthcare. We foster interdisciplinary working internally and collaborate widely externally'.

11 The College is involved in the higher education sector in Europe through alliances with leading science and technology universities and actively monitors the implementation of the Bologna Process, which it supports, in order to maintain parity of its awards with European institutions. The College's Strategic Education Committee (SEC) is developing a Bologna Strategy to ensure that it retains 'full control' of the design of its programmes while maintaining compatibility with the 'spirit and the letter of Bologna'.

12 The College does not validate programmes delivered by other institutions nor does it franchise its programmes of study. There is a limited number of collaborative teaching relationships with partners in London; these include the Royal College of Music, the Royal College of Art, the Victoria and Albert Museum, the Natural History Museum, and University College London.

Background information

13 The published information for this audit included:

- the information available on the College's website
- the report of the previous quality audit of the College, undertaken in 2002
- the reports of HEFCE and QAA reviews of provision at the subject level
- the College's prospectuses.

14 The College provided QAA with the following documents:

- the SED and annexes
- the Student Handbook 2004-05
- the College's Academic Regulations and Requirements for Programmes of Study (October 2004)
- the Learning to Learn booklet
- discipline self-evaluation documents (DSEDs) for the four areas selected for DATs.

15 The audit team was given ready access to the University's website and intranet and to a range of documentation relating to the DATs, the latter including samples of student work.

The audit process

16 Following a preliminary meeting at the University in October 2004, QAA confirmed that four DATs would be conducted during the audit visit. QAA received the SED in January 2005 and the DSEDs in April 2005. The audit team's selection of DATs was: bioengineering; computing; physics, and civil and

environmental engineering. The DSEDs were written for the purposes of the audit.

17 The audit team visited the College from 26 to 28 April 2005 for the purpose of exploring with the Deputy Rector, other senior members of staff, and student representatives matters relating to the management of quality and standards raised by the SED and other documentation provided for the team. During this briefing visit, the team signalled a number of lines of enquiry for the audit and developed a programme of meetings for the audit visit which was agreed with the College.

18 At the preliminary meeting, the students of the College were invited, through their Students' Union, to submit a separate document expressing views on the student experience at the College and identifying any matters of concern or commendation with respect to the quality of programmes and the standards of awards. They were also invited to give their views on the level of representation afforded to them and on the extent to which their views were taken into account by the College.

19 In January 2005, the Students' Union submitted to QAA a students' written submission (SWS). The Students' Union indicated that the document had been shared with appropriate College staff. There were no matters that the audit team was required to treat with any level of confidentiality greater than that normally applying to the audit process. The team is grateful to the students for preparing this document to support the audit.

20 The audit visit took place from 6 to 10 June 2005 and involved further meetings with staff and students of the College, both at institutional level and in relation to the DATs. The audit team was Dr R Hannam, Professor T J Kemp, Dr J Leake, Professor A Narayanan, Dr C Rodger, auditors, and Ms A Cork, audit secretary. The audit was coordinated for QAA by Mrs S Patterson, Assistant Director, Reviews Group.

Developments since the previous academic quality audit

21 The College was subject to institutional review as part of the scrutiny of its application for taught and research degree-awarding powers. The report of the review recommended that the College consider improvements to the annual monitoring process and a review of research training and its support; the College had responded to these recommendations before the review report was published in April 2004. The review report also recommended a review of the College's committee structure that led to a revised senior management structure, including a Management Board, an Operations Committee and the establishment of the SEC (paragraph 29).

22 Further recommendations included the institution of a college-wide approach to feedback to students and to the communication of assessment criteria. Guidance on these matters was circulated in June 2004. Comments from external examiners are summarised as a report for the University of London and provided to the Quality and Academic Review Committee (QARC) for comment.

23 The report noted that there was no direct representation of learner support services on the College's senior academic committees. In response, the Director of the Library Services and the Director of the Information and Communications Technology unit (ICT) have been made ex officio members of the QARC.

24 The College has had no subject reviews since the previous audit. Developmental engagements (DEs) in mechanical engineering and chemistry resulted in judgements of confidence in the academic standards and quality of learning opportunities and the College's quality assurance procedures overall. The DE report for mechanical engineering was initially considered by the undergraduate studies committee and the graduate studies committee. The DE report for chemistry was considered by QARC which established a working group to give detailed consideration to

the recommendations in the report.

25 Undergraduate programmes in aeronautical engineering, chemistry, chemical engineering, civil and environmental engineering, computing, electrical engineering, materials science, joint mathematics and computing, mechanical engineering and physics all have professional, statutory and regulatory body (PSRB) accreditation. The MSc in Engineering and Physical Science in Medicine and the MScs in the Department of Civil and Environmental Engineering are all professionally accredited. The MBA is accredited by the Association of MBAs and the Certificate of Advanced Study in Learning and Teaching (CASLAT) is accredited by the Higher Education Academy (HEA). None of the reports of PSRB reviews seen by the audit team identified any serious matters for attention by the College (see paragraphs 83 and 84).

26 In the view of the audit team, the College has taken appropriate action in response to the recommendations of issues raised in the institutional review report; the team considers that there is scope for further development of the College's approach to annual monitoring reports to provide additional information in support of quality assurance and enhancement (see paragraph 61).

Section 2: The audit investigations: institutional processes

The institution's view as expressed in the SED

27 The SED pointed to the Senate, as the 'supreme academic authority of the College', as being the body with responsibility for maintaining oversight and development of the quality and standards of provision. It is charged, under the statutes of the College, with 'promoting the academic work of the College, both in teaching and research, and with regulating and supervising the education and discipline of the students of the College'. The College's Charter provides that no statute

affecting academic policy 'shall be made' until the Senate has been consulted. Senate comprises the Rector (as Chair), pro rectors, deans and other senior officers of the College ex officio, student representatives and appointed and elected members representing the various academic constituencies.

28 The SED identified that the challenge for the College in terms of quality assurance was to enable departments and faculties to achieve their aims as they saw best, within a strong but flexible framework of College expectations for the delivery of programmes, monitored by a robust system of checks and balances at institutional level.

The institution's framework for managing quality and standards, including collaborative provision.

29 The management structure places the Rector as responsible to the Council for ensuring that excellence in teaching and research is promoted throughout the College. The Rector is supported by a Deputy and four pro-rectors, described in the SED as 'academic leaders working across faculties and functions to develop academic policy'. The SED stated that they 'establish[ed] and promote[d] best practices, [were] a source of strategic thinking and advice to the Rector, and help[ed] to maintain the highest standards of quality...'. The Rector is advised by a Management Board which he chairs. The SEC reports directly to the Management Board on strategic issues.

30 Two of the pro rectors have direct responsibilities relating to the quality and standards of education. The Pro Rector (Educational Quality) has responsibility for teaching and learning, quality assurance and enhancement, student admissions and welfare, and the Centre for Educational Development (CED). He chairs the QARC, which is a key committee for quality assurance (see paragraph 36), the Quality Assurance Advisory Committee (QAAC), the Recruitment and Admissions Policy Committee, and the Student Welfare Committee. In 2004, the College appointed a Pro Rector for Postgraduate Affairs whose role

covers both research and taught postgraduate programmes. She works closely with the Pro Rector for Educational Quality to develop postgraduate academic policy, establish and promote best practice, and act as a source of strategic thinking and advice on postgraduate matters to the Rector and Deputy Rector. The incumbent's duties include overseeing the work of the two graduate schools and coordinating the transferable skills training programme for research students and postdoctoral workers.

31 There are five deans who are full-time professors of the College and are aligned with each of the faculties; the Faculty of Medicine has two deans, one clinical and one non-clinical. The role of deans at the College is distinctive in that they have a representative rather than an executive function. The SED pointed to the deans having been elected by their peers as ensuring that they 'enjoy[ed] the confidence of their colleagues' so that they could act as a 'conduit for academic opinion which complement[ed] that coming through the normal management structure'. The SED noted that the deans played 'an important role in quality assurance' by, for example, chairing both ad hoc and formal committees and being members of others.

32 Each faculty has a faculty principal who, according to the SED, has an 'overall responsibility, in conjunction with Heads of Department, Divisions and Centres, to implement comprehensive teaching and research strategies for individual departments, divisions and centres, and for the faculty as a whole'. Faculty principals and heads of department are required to ensure that curriculum delivery and annual monitoring processes meet College requirements in relation to internal and external expectations for quality assurance, including the guidance in the *Code of practice for the assurance of academic quality and standards in higher education (Code of practice)*, published by QAA.

33 At programme level, the responsibility for academic standards and the quality of the educational experience rests with the heads of department who develop departmental

educational strategy in line with the College's strategic goals. The directors of undergraduate and of postgraduate studies are important posts for the management of academic quality in science and engineering departments. They are complemented by senior tutors who oversee undergraduate student progress and welfare and coordinate the personal tutor system. Departments with sizeable postgraduate populations may also appoint a postgraduate tutor or combine the role with that of Director of Postgraduate Studies.

34 The management structure in the Faculty of Medicine differs, attributed by the SED to the 'size and complexity of the undergraduate medical degree'. The Head of Undergraduate Medicine has responsibility for ensuring the appropriateness of the standards and quality of the undergraduate medical degrees. The lead National Health Service (NHS) clinical teachers have honorary academic status within the College. The coordination of the undergraduate medical teaching provided by the NHS is the responsibility of the directors of clinical studies who are appointed by each of the NHS Trusts that contribute to the teaching. The management of quality and standards is effected through a number of posts such as the Head of Quality Assurance and Enhancement, the deputy heads of division (teaching) and year heads. Committees with particular responsibilities for quality and standards are supported by the Undergraduate Medicine Office and report to the Medical Studies Committee.

35 The College has limited collaborative provision which is subject to the College's standard quality assurance and monitoring processes through the relevant studies committee for undergraduate programmes and by the relevant GMC for a taught postgraduate programme or a joint research degree scheme. Collaborative programmes are reviewed in line with the College's normal procedures (see paragraphs 163-167).

36 A signal development for institutional management of quality and standards arising from academic restructuring was the constitution of the QARC to replace the Undergraduate and Graduate Studies Committees. The QARC has 'an overarching responsibility for promoting excellence in undergraduate and postgraduate education in the College'. The SED identified the QARC as the 'forum for developing policy and procedures in relation to academic standards and quality, for ensuring that adequate arrangements were in place for the approval and review of programmes of study, for promoting good practice in all matters educational and for reviewing arrangements for obtaining student feedback'. Ancillary to the QARC is the advisory QAAC which has no executive powers but can make recommendations to the Senate through the QARC. The SED noted that the QAAC had played a 'significant role in the incorporation of external reference points in the College's framework for quality and standards'.

37 At the level below QARC there is a dichotomy in the quality structure. The Engineering, Medical and Science Studies Committees, each chaired by the relevant dean, oversee quality and standards in their relevant disciplines at undergraduate level. The membership includes representation from senior academic staff responsible for the delivery of undergraduate teaching in each department and the School of Medicine to ensure that proposals are subject to peer review from practitioners in related discipline areas and 'there is some ownership at departmental level of the Committees' discussions'. The Graduate School Management Committees (GSMCs) perform a similar function for postgraduate taught programmes in their discipline areas, with many quality assurance functions delegated to Postgraduate Quality Committees (PQCs). The other element of the dichotomy is the faculty teaching committees operating in the Faculties of Engineering, Life Sciences and Physical Sciences. The faculties have developed individual terms of reference for their undergraduate teaching committees, but

common elements include: development of a faculty teaching strategy; promotion of cross-departmental and inter-faculty teaching activities; identification and promotion of good practice, and developing faculty-wide solutions for increasing quality student recruitment.

38 All undergraduate and postgraduate degree programmes must conform to the University of London Ordinances. The structures of the undergraduate science, engineering and medical degrees are set out in the College degree requirements, and each is different. Science degrees are 'modular in structure but not necessarily in philosophy'. Students take four course units in value each year, and must pass in nine to qualify for a BSc degree and 13 to qualify for a MSc degree. While the discipline areas are seen by the College as the best place to decide on what combination of units leads to coherence, schemes 'for the award of honours' must be approved by the Science Studies Committee of Senate.

39 Engineering degrees are not modular. Discussion in 1988 about the possibility of introducing modularisation concluded that modularisation threatened coherence in engineering programmes. Student must satisfy the examiners in all aspects of the Parts I, II and III examinations to qualify for a BEng and also in Part IV for a MEng degree. While the discipline areas determine the overall content and format of degrees, these are subject to approval by the Engineering Studies Committee and the relevant professional body.

40 The undergraduate medical degree underwent restructuring in 1998 to conform to the requirements of the General Medical Council as published in 'Tomorrow's Doctors', with further curriculum review undertaken in the academic year 2001-02. It includes provision for study of a BSc as an integral part of the programme and includes both modular and non-modular delivery, as appropriate to the intended learning outcomes.

41 At postgraduate level there is less restriction on the format of programmes. The College attributes the fact that some are

modular and others 'more traditional' to the appropriateness to the discipline and the learning outcomes. The common features are a requirement to undertake a substantial project, preferably involving research; and 12 months duration for all programmes.

42 The dichotomy referred to in paragraph 37 appeared to the audit team to be a possible locus for duplication, if not confusion, of roles, and the potential for this has been debated by the College. The Medical Studies Committee has addressed the issue by operating in a dual role reporting to Senate on broader quality and standards issues and to the Faculty Principal's Advisory Group on the management of the undergraduate medical degree. Such a dual role was also suggested for the Engineering and Science Studies Committees, but the faculties did not support the recommendation. After further discussion, the decision was made to clarify the function of the committees thus: the studies committees should act as regulatory bodies while the faculty teaching committees discussed specific projects and formulated new courses and degree programmes which the studies committees would subsequently consider. The SED defined the differentiation as faculty teaching committees having a focus primarily on quality enhancement with the discipline studies committees having a strong quality assurance role. The team considered that the explanation for this diversity of arrangements answered the potential for duplication of process and roles.

43 As noted above, the audit team found considerable variability across the College in the roles of studies committees and the faculty teaching committees; the differing levels of modularisation between faculties; and the unique position of the Tanaka Business School in reporting directly to the Deputy Rector, although approval and monitoring of its postgraduate courses and modules are directed through the GSEPS. In the course of the audit, the team explored whether such variability of structure and practice provided for consistency in the treatment by the College of its students across the faculties and the Tanaka Business

School through scrutiny of documentation and discussions with staff and students.

44 It was clear to the audit team that in its advisory capacity to the QARC, the QAAC fulfilled a very significant and supportive role in the assurance of quality and standards. In discussion with staff, the team heard the QAAC described as 'dealing with the nitty-gritty topics while the QARC concentrated on strategic quality issues'. The team considered that that the division of responsibilities between the QARC and the QAAC was entirely appropriate and formed the view that the institutional overview of the work of the faculties exercised by the QARC, supported by the QAAC, was working satisfactorily. On the basis of discussion with staff and students and scrutiny of documentation, the team concluded that, notwithstanding the variability between the faculties in course and committee structure, in the main the College's framework for managing the quality of its awards was fit for purpose and functioning as intended.

Management of standards

45 In the SED, the College stated that its assessment strategy was to ensure 'consistency of academic standards within and across these differing degree structures through the application of common conventions and programme approval procedures'. The College Academic Regulations and degree requirements are available to staff and students on the College website.

46 Key elements of the approach were identified in the SED as:

- specification of the range of methods of assessment that may be used for individual programmes of study
- the requirement that schemes for the award of honours for undergraduate programmes must be approved by the appropriate studies committee
- requirements for the marking of assessed work
- common mark bands for honours classifications of all undergraduate degrees

and written grading criteria approved by the relevant studies committee

- common Pass and Distinction marks for all taught postgraduate programmes
- specification of the conditions for resit examinations, the award of Pass and aegrotat degrees, and degrees without a named subject area
- guidelines on extenuating circumstances and penalties for late submission of work
- the Special Examinations Panel which considers requests for special examination arrangements for students with disabilities.

47 The SED noted that monitoring of the reliability and validity of the assessment procedures was exercised principally through the external examiner system and the boards of examiners (paragraphs 68-75). Senate receives data annually on student progress and failure rates, while the studies committees receive information on the distribution of honours degree classifications across the College and on the performance of students in resit examinations. Boards of examiners for undergraduate degrees are appointed by the relevant studies committee and formally communicate the recommendations of the boards to the Academic Registrar. The GSMCs approve the membership of boards of examiners for postgraduate taught courses. The examinations for MPhil and PhD degrees fall under the regulations of the University of London, although the College oversees the process of transfer from MPhil to PhD.

48 The Registry is responsible for communicating procedures and practices for quality assurance and standards to academic staff. Major policy and procedure documents are placed on the College website. The SED acknowledged that the College could be more proactive in making the framework for quality assurance and standards more accessible to academic staff.

49 In the SED the College stated its belief that the measures outlined above were 'sufficient to secure confidence in the consistency and fairness of the assessment

process'. The SED went on to recognise concern that practices in respect of undergraduate degree progression rates and of marking schemes for postgraduate degrees might need to be 'more closely regularised'. In this context, the College is undertaking a survey of progression practices and year weightings in all science and engineering undergraduate programmes. A cross-Graduate Schools Working Group is examining the application of marking schemes in taught postgraduate programmes in view of the current diversity in practice.

50 In its investigations, the audit team found significant variability in the Pass marks for individual units at undergraduate level with marks of 30, 33, 35 and 40 per cent variously being quoted as being of 'Pass' level which, in the view of the audit team, has the potential to give rise to confusion about standards at the threshold level. Accordingly, the team advises the College to extend its current survey and review of variability in Pass/Fail boundaries at postgraduate level to cover the whole of its provision to establish a common set of Pass marks to be applied to existing programmes so as to achieve early convergence of requirements and consistency of approach, and to demonstrate equity of treatment of students across the schools and faculties.

The institution's intentions for the enhancement of quality and standards

51 The SED included considerable detail about the College's 'practices and aspirations' for the enhancement of quality and standards which reflect the Strategic Plan 2002-2005 and the Learning and Teaching Strategy 2002-05. The SED highlighted the following priority areas in learning and teaching as particularly relevant to the enhancement of quality and standards:

- review of the College's academic mission and practice
- provision of challenging research-based education
- enhancement of quality assurance

- further development of an accessible and effective system of student support
- the status and reward of academic staff involved in teaching and student support and welfare
- distance learning and e-learning strategies.

The SEC is the principal driver in reviewing and developing the College's mission and profile, with Senate acting as a forum to assess initiatives emanating from the SEC. The Learning and Teaching Strategy Management Group, chaired by the Pro Rector (Educational Quality), oversees the monitoring of targets specified in the Learning and Teaching Strategy and facilitates cross-college exchange and dissemination of good ideas and practice.

52 In the SED, the College emphasised three main enhancement activities:

- maintenance and development of its 'challenging, research-based education'
- continued improvement of all aspects of student learning and support
- development of academic and support staff to their highest potential.

These aims are supported by a range of strategies, mainly the Learning and Teaching Strategy, the Human Resources (HR) Strategy (see paragraph 109), the e-learning strategy (see paragraph 133) and the Library Strategy (see paragraph 131). The Strategic Plan 2003 to 2007 affirms that these activities remain priorities for the College.

53 Other teaching and learning activities aimed at enhancement are:

- improving the coordination of student support and welfare services and developing a college-wide student progress file
- developing the College e-Learning Strategy (January 2003) through a virtual learning environment (VLE) and the establishment of part-time Learning Technologist posts
- improving the generic research student training

- the appointment of two new senior lecturers in transferable skills to support PhD students in all three years of study
- further development of the electronic college-wide undergraduate student on-line evaluation system (SOLE), to be extended to taught postgraduate students.

54 Other activities aimed at enhancement of provision and identified in the SED included:

- extension of the remit of the Equal Opportunities and Diversity Committee to cover student as well as staff related matters
- a new student administration computer system to provide better quality information to the centre and to departments
- revisions to the annual planning round to reflect the introduction of the faculty structure
- discussion at the SEC of issues of strategic importance raised at faculty planning meetings.

55 The SED pointed to the following successful enhancement activities:

- the take-up of the CASLAT, (see paragraph 120)
- the development of the English Language Support Programme
- the consolidation of the Teaching Development and Research Grant Schemes, awarded annually to enhance teaching methods and curriculum design. Awards are also made for 'Excellence in Teaching' (see paragraph 114).

56 From its reading of a range of documents and from meetings with staff and students, the audit team was able to confirm that the College's account in the SED of its mechanisms for identifying and disseminating good practice was accurate. It considers the College's plans for the enhancement of its provision to be both appropriate and timely. The team noted particular examples of good practice in the DATs (see paragraphs 222 and 235). The team

regarded the introduction of SOLE (see paragraph 103) as a valuable means of eliciting student opinions. The team noted plans for the evaluation of undergraduate student support services (SWOLE) and of project and other non-lecture aspects of undergraduate teaching (PROLE) and the trialling of evaluation for research student feedback (ROLE) and the planned introduction of a parallel scheme for master's level students (MOLE). It is intended that all these evaluation mechanisms be in place by the academic year 2007-08. It also noted the attention being given to remedying the deficiencies in mathematical skills of some school leavers and the greater consideration given to the teaching achievements of academic staff seeking promotion. Finally, it noted the decision of the College to finance an additional sabbatical post within the Students' Union for a Deputy President with special responsibility for graduate student matters (see paragraph 88).

Internal approval, monitoring and review processes

Programme approval

57 The SED expressed the College's belief that it was 'impracticable for a new or radically modified undergraduate degree programme to be subject to a full scale review procedure prior to its introduction'. Accordingly, approval of undergraduate degree programmes is a two-stage process. The initial stage which, since 2004, has involved reference to external assessors, is scrutiny of the proposal by the relevant studies committee. The second stage takes place during the second or third year of operation of the new programme and is, according to the SED, 'more detailed and rigorous'. The review is conducted by a subgroup of the relevant studies committee, assisted by external assessors, and 'seeks confirmation that the original objectives are being achieved'. In the view of the audit team, the interval between the two stages of approval has the potential to cause difficulties should stage two approval not be forthcoming, and it was not clear whether stage two approval was,

in practice, automatic because students were already enrolled on the programme. While the team was assured that, in the event of stage two approval being withheld, the College would ensure that all students registered on the course would be supported to complete their studies; the team considers that this commitment should be made explicit in the formally documented procedures. In the course of one of the DATs, the team noted a delay of three years between the initial stage of approval and recruitment to a programme, resulting in the second stage review not taking place until five years after the first stage. The delay raised concerns in the team about the maintenance of the currency of the curriculum and the effectiveness and timeliness of a procedure intended to confirm that the original objectives were being achieved. Accordingly, the team regards it as desirable that the College review its approach to the approval of undergraduate programmes to confirm the purpose, scope and scheduling of each of the two stages.

58 Proposals for new postgraduate programmes are considered by the GSMCs. The process is similar to that for undergraduate programmes except that there is no second stage, so, according to the SED, the first stage is 'more rigorous'. The SED noted that all postgraduate programmes were 'thoroughly monitored by the Graduate Schools on a biennial basis which obviate[d] the need for a second stage approval'. Minor revisions to existing programmes, such as adding new modules, or changes to the assessment arrangements, are delegated to the discipline studies committees or the GSMCs through the PQCs. From its reading of documentation and discussion with staff, the audit team concluded that the approval process for taught postgraduate provision as set out in the Procedure for the Approval and Review of Master's Degrees and Postgraduate Diploma Courses, dated January 2005, was fit for purpose and operating as intended.

59 From its reading of documentation relating to the approval of programmes, the audit team

concluded that the College's processes were in accordance with the *Code of practice* and drew on the relevant subject benchmark statements. It noted that there was work to be undertaken in relation to the use of *The framework for higher education qualifications in England, Wales and Northern Ireland* (FHEQ) in approval processes (see paragraph 78).

Annual monitoring

60 The SED stated that 'monitoring of programmes of study [had] evolved differently for undergraduate and postgraduate degrees'. The College considers that for undergraduate programmes monitoring is 'best done at the point of delivery, i.e. within the departments and the School of Medicine'. On publication of the *Code of practice, Section 7: Programme approval, monitoring and review* the College issued guidance to departments on areas to be covered in annual monitoring of undergraduate programmes. Matters considered in annual monitoring include:

- student examination performance
- student feedback via tutorials
- Staff-Student Committee (SSC) feedback
- results from SOLE
- reports from external examiners
- statistical data on examination performance
- comments from employers
- demand for graduates
- reports from PSRB visitations
- College reviews of existing programmes.

61 Departments provide a brief report to the relevant studies committee, covering the areas identified in the checklist on the outcomes of their annual monitoring exercise. From reading a number of annual monitoring reports the audit team formed the view that the process was well established in departments but also found variability in the extent of evaluation, both in the reports themselves and the studies committees' discussion of the reports. In discussion with staff, the process was described

to the team as essentially one of 'report rather than review'. In the opinion of the team, there is potential for the process to make a more productive contribution to the College's oversight of its provision through more effective use of the information in the reports. It would therefore be desirable for the College, in developing its approach to annual monitoring, to draw on existing good practice in departments to achieve consistency in the extent of the analysis and areas covered in the reports from departments. A more evaluative approach to the consideration of the reports within studies committees would also contribute to the College's processes for the quality assurance and enhancement of its provision.

62 The GSMCs monitor the performance of the postgraduate programmes in their subject areas on a biennial basis through the PQC. The SED acknowledged that, prior to the establishment of the graduate schools, the monitoring of postgraduate programmes had not been carried out in a 'consistent or transparent manner'. The process now requires a detailed report on each programme in a standard format to be forwarded to the PQC by the programme organiser. A member, or nominee, of the relevant PQC reviews and 'rates' the material and the rating goes to the programme organiser for comment. The reviewer's reports, and any comments from the organiser, are then considered by the PQC and thence the GSMC, after which feedback is provided to the head of department. From the academic year 2004-05 the Graduate Schools will report annually to the Senate on the outcome of the process. In the SED, the College described the process as a 'sound, thorough and regular system of monitoring the College's postgraduate provision'. The audit team's reading of the minutes of the GSMCs and PQCs confirmed that the biennial review process was working effectively: where the rating was 'unsatisfactory' or 'poor', remedial action was required and subsequently monitored.

Periodic review

63 Periodic reviews of undergraduate teaching in departments have been undertaken

since 1987 and now form part of the remit of the QARC. They are conducted on a five-year cycle and aim to cover all aspects of undergraduate teaching in a peer review process conducted, according to the SED, in a 'constructive, non-confrontational manner'. The process is intended to assure the QARC that students are enabled to achieve appropriate standards in the subject area under review. The department and the Registry prepare a review document, supported by statistical data, which is supplied both to the QARC and to four 'specially chosen outside assessors, (two UK academics, one academic from a European HEI [higher education institution] and one industrialist)'. The external assessors visit the department and meet its head, senior academics and students, and also view the facilities. The external assessors each provide independent reports to the QARC, which reviews these and all the associated written material, and discusses them with the head and director of studies before submitting a report and recommendation to the Senate. Twelve months later the head of department is asked to advise the QARC on the progress of responses to any recommendations. The Medical School operates a very similar system but without the European assessor. No review template is utilised and assessors are invited to frame their reports in accordance with a set of questions relating to standards and quality. From its reading of recent periodic review reports, the audit team concluded that the process was robust and a strong feature of the College's procedures for the assurance of quality and standards.

64 The College has determined that periodic review of taught postgraduate programmes will take place at faculty rather than departmental level, first because some departments run only one or two such programmes and secondly, all such programmes are subject to biennial review at the institutional level. The first review under this procedure was scheduled to take place in the academic year 2004-05 under the aegis of QARC.

65 In the academic year 2002-03, the College introduced a procedure for the review of

departmental training of research students on a five-yearly basis, the first report being made to the Senate in February 2003. The establishment of the review was in response partly to comment in the previous audit report, and partly to the College's observation of relatively slow improvement in submission rates for PhD students. The procedure parallels that of review of undergraduate teaching, and a joint report is made by internal and external experts to the QARC which meets departmental representatives before reporting to the Senate. The department is asked to report back to the QARC after 12 months on progress in response to the findings of the review. The audit team's consideration of this process through the DATs led it to believe that the process was having a positive effect on submission rates in general, as reported in the SED although, at the time of the audit, the College target of 75 per cent completion within four years of registration was yet to be achieved.

66 In the SED, the College expressed confidence in its mechanisms for assuring the quality of programmes. From its scrutiny of relevant documentation and discussion with staff and students, the audit team concluded that the SED represented an accurate account of the College's approach in this area. From the evidence available to it and discussion with staff and students, the team formed the judgement that broad confidence could be placed in the soundness of the College's current and future management of the quality of its academic programmes.

External participation in internal review processes

67 All approval and review procedures for both undergraduate and taught postgraduate programmes include external assessment. Departments are invited to nominate persons with appropriate expertise to provide external input and an independent and balanced judgement on the programmes in question. They are normally senior academics from comparable UK universities or senior employees in a relevant industry or public service. For

undergraduate programmes the College also aims to include a European academic. A senior member of the academic staff (or former member) who is independent of the department, but with senior status and knowledge of the discipline area, is also invited to suggest possible assessors. The final decision on the composition of the team of external assessors is taken by the Chair of the Senate Committee charged with undertaking the review with the aim of assembling a balanced team. From its reading of a number of recent periodic review reports the audit team was able to confirm that the assessor teams were constituted as required by the procedures and that they included an academic from a major European institution. The team noted as a feature of good practice the substantial contribution to periodic review of undergraduate programmes of scrutiny by a broad range of external peers, including industrialists and academic staff from institutions in Europe. The team concluded that the use of external advice in periodic review was strong and scrupulous, and supported a judgement of broad confidence in the College's current and likely future management of the quality of its programmes and the security of its awards.

External examiners and their reports

68 The roles and duties of external examiners (sometimes also called 'visiting examiners') are set out in the College Examination Instructions. External examiners can also be 'intercollegiate' examiners from within the University of London. External and internal examiners form boards of examiners, most of which are 'single' boards dealing with all papers and examinations in a particular subject. Some boards can also be joint boards for students taking more than one principal subject. It is College policy to have at least two external examiners on every board of examiners.

69 The criteria for nomination and appointment of external examiners include reference to 'persons of seniority and experience who are able to command authority'. Nominations using a standard pro

forma start at departmental level and are processed at the studies committees for undergraduate programmes and at the GSMCs for postgraduate taught programmes. These committees have delegated authority to approve appointments on behalf of the Senate and all names and affiliations are reported to the Senate to secure an overall College perspective on the range and nature of external examiner appointments.

70 The expectations of external examiners are clearly stated in the College Examination Instructions and cover approval of draft question papers, assessment of examination scripts, projects and coursework and, where appropriate, participation in viva voce examinations. The main duties of external examiners include ensuring that 'the standard of the Degrees of the University of London awarded by the College in the field of study concerned is consistent with that of the national university system' and 'having regard to the totality of the degree in respect of both the syllabus and examination'. If an external examiner is from another College of the University, there is the additional duty of ensuring consistency in the standards of degrees of the University of London. Detailed guidelines are provided to new external examiners for selection and sampling of scripts so that examiners 'have enough evidence to determine that internal marking and classifications are of an appropriate standard and are consistent'.

71 The College has recently introduced a non-mandatory Induction Day for new external examiners that ran for the first time as a trial in 2004. The induction consisted of a background briefing on the College academic structure as well as College expectations of external examiners and the processes involved in responding to external examiner reports. The new external examiners were provided with the opportunity to visit departments and meet students and staff in an informal setting. In the SED, the College reported that feedback on the Induction Day had been positive and that it intended to continue with Induction Day

arrangements as a permanent part its briefing programme for new external examiners.

72 Additionally, the QAAC has identified a portfolio of information that departments should provide to new external examiners so that all external examiners receive the same comprehensive information, including the most recent programme specification, the student handbook and details of how external examiners' reports are processed within the College. The QAAC considered the revised section of the *Code of practice, Section 4: External examining* in February 2004 and found that no consequent significant changes were required to the College's internal procedures.

73 External examiners are requested to submit a written report each year to the Rector using a form consisting of three parts. The first part is a checklist and requires external examiners to indicate whether they were satisfied with a number of 'administrative' items, such as receiving draft questions and marking schemes in good time. The checklist is comprehensive and also requires the external examiners to indicate satisfaction with the nature, spread and level of questions as well as double-marking. The second part consists of asking external examiners to comment freely on the courses in their subject area and on the examination process itself. External examiners are invited to comment in particular on the coherence of programmes, appropriateness of standards in relation to national subject benchmarks, the programme specifications and on any aspects of good practice. The third part is for public dissemination in accordance with recommendations of HEFCE's document 03/51, *Information on quality and standards in higher education: Final guidance*. External examiners may also send separate confidential reports to the Rector if they wish.

74 On receipt, external examiners' reports are read by the Pro-Rector (Educational Quality) and by staff in the Registry to identify any points of concern and good practice. The report is then referred to the chair of the board of examiners and to the relevant head of department, with a request to comment on the points raised. The

report and all comments are subsequently considered by the relevant discipline studies committee for undergraduate examinations and by the relevant GSMC for examinations for taught postgraduate programmes. The Registry then sends a copy of the departmental response to the external examiner with the relevant minute of the committee meeting where the report was considered.

75 External examiners' reports and departmental responses form a separate agenda item at studies committee meetings, the minutes of which seen by the audit team indicated that each department's response is analysed by the full committee. The SED expressed confidence that the College's procedures for acting upon reports of external examiners were 'basically thorough, sound and effective'. The SED also reported that the attention of studies committees would be drawn to the importance of identifying and resolving issues raised by external examiners. The institutional review report identified the possibility of the College preparing an annual summary of external examiner reports to gain an overview of trends and identify aspects of good practice for dissemination throughout the College. The College produces a report to the University of London on intercollegiate and external examiners' reports that includes an evaluative summary of general issues and good practice. The document is provided to the QARC for comment as well as being circulated to boards of examiners for the dissemination of good practice. The audit team concluded that the College's procedures for external examining and consideration of the reports of external examiners were thorough, sound and effective and supported a judgement of broad confidence in the College's management of the standards of its academic awards.

External reference points

76 In the SED the College stated that it used the *Code of practice* as 'an opportunity to review and, where appropriate, improve current practices'. The College aims to adhere to the precepts, 'while recognising that the guidance

offered...is not prescriptive'. As each section of the *Code* has been published, it has been scrutinised by an appropriate grouping in the College. The SED indicated that while many sections of the *Code* 'required little action by the College', consideration of others had led to positive outcomes, for example, the formulation of College guidelines for careers education, information and guidance, the establishment of a Student Placement Working Group which is developing a College policy statement on placement learning, and a checklist of action from departments arising from the section of the *Code*, *Section 6: Assessment of students*.

77 The SED declared that the College had not 'systematically reviewed its existing programmes to position them against the FHEQ' but stated that the College was satisfied that its undergraduate and taught postgraduate awards were 'consonant' with the H and M levels of the FHEQ. The SED cited as an illustration of this the College requirement that 'all four year undergraduate Master's degree programmes [had to] include at least one academic year of learning outcomes at M level'. External examiners are asked to confirm that the standards achieved are at the appropriate FHEQ level, and that subject benchmarks are reflected in the standards set and achieved. The College affirms that detailed scrutiny has confirmed that all programmes meet the subject benchmarks.

78 Related to the College's approach to the FHEQ is the designation of course elements, with departments generally labelling such elements as they see fit in their programme specifications and handbooks. Consequently, some programme specifications and handbooks seen by the audit team did not clearly identify the level of such elements in relation to the FHEQ, leading to some lack of transparency as to the level of elements making up programmes. The College accepts that more work needs to be done with regard to making the relationship between programme outcomes and the FHEQ more explicit, and is currently reviewing its programme approval and review

procedures with this in mind. In the view of the team a clear and transparent method for labelling the level of course elements would be useful both within the College and for potential students and, therefore, the team considers it desirable for the College to establish a systematic and consistent approach across the College to the coding of course elements to clearly designate levels of study.

79 In conducting the DAT of biomedical engineering, (paragraphs 169-190) the audit team noted that the third year of the programme contained considerable amounts of M-level material, while the fourth year leading to the MEng contained considerable amounts of H-level material. While the summing of all material over the final two years gave roughly equal amounts of H and M-level material, the notion of academic progression inherent in the FHEQ was absent. Students leaving the second year were confronted with M-level material, while those in the fourth year studied a combination of H and M-level material no different in level from that encountered in their third year. The programme specification did not indicate clearly which elements were at M-level and which elements were at H-level. The team is of the view that the course design fell seriously short of the normal expectations of academic progression. Accordingly, the College is advised, in the context of FHEQ, to review its approach to programme structures to provide assurance of organised academic progression through the curriculum, with particular reference to the balance and scheduling of the H and M-level course elements in years three and four of undergraduate programmes.

80 The College acknowledged in the SED that the award of a 'pass classified degree', although infrequent, has on occasion been made when the 'marks achieved [had] been marginally below 40 percent and that this [might] not be sustainable in the context of FHEQ'. The SED noted that the QARC would review the position during the academic year 2004-05; in meetings with senior staff, the audit team was informed that the review had been deferred to the academic year 2005-06. At the time of the audit

the College was reviewing all programmes to ensure that the awards accorded with the appropriate levels of the FHEQ.

81 In the view of the audit team, there is a more significant issue with the BSc and MSc degrees on a course unit structure which, according to the University of London regulations, currently allows a student to be awarded a degree on successful completion of 9 or 13 course units respectively. The College requires students to take four course units per year. The team questioned whether those students who had successfully completed only 75 percent of a programme could necessarily have achieved all the intended learning outcomes of the award. The team welcomed the fact that a working group had been set up to consider this issue.

82 Programme specifications are produced to an institutional template. The SED noted that programme specifications for undergraduate programmes had been approved by the studies committees and that the Graduate Schools had 'almost completed the approval of programme specifications for taught postgraduate programmes'. All programme specifications must be lodged on the College website by the end of the academic year 2004-05. The audit team's reading of a number of programme specifications indicated that there was considerable variability in the comprehensiveness and content of these. The team considers it desirable for the College, in refining its approach to the formulation of programme specifications, to identify and draw on existing good practice within its provision, with particular attention to the specification of intended learning outcomes; in this context, the College may wish to take account of the findings of its working group considering the outcomes of DEs.

Programme-level review and accreditation by external agencies

83 The academic profile of the College means that the majority of its undergraduate programmes are accredited by professional science and engineering bodies or by the General

Medical Council. At postgraduate level, the MBA degrees, the MSc offered by the Department of Civil and Environmental Engineering, the MSc in Engineering and Physical Science in Medicine, and the CASLAT are also accredited by the relevant professional bodies.

84 The process of accreditation is handled directly with the accrediting bodies by departments and the SED indicated that the College saw 'no need for involvement from the centre in this activity'. PSRB reports are considered by studies committees for undergraduate programmes or the relevant GMC for postgraduate taught programmes. The reports also form part of the documentation for internal reviews and for annual monitoring. The SED signalled the intention to establish a more systematic approach to responses to PSRB reports but, in meetings, the audit team was informed that the majority of reports did not require a response from the College or department. It was also confirmed that the faculty principal would pursue any significant issues raised in PSRB reports. The SED went on to note the potential for the 'centre' to be unaware of accreditation reviews and therefore the Registry maintains a record of the schedule for accreditation of all relevant programmes. Copies of PSRB reports are required to be submitted by departments to the Registry. From scrutiny of documentation, including recent PSRB reports and discussion in meetings, the audit team concluded that PSRB reports were more fully incorporated into the College's quality assurance structure than had previously been the case and that the system now in operation would allow for an appropriate institutional overview of the outcomes of PSRB reports.

Student representation at operational and institutional level

85 The SED stated that the College 'actively encourage[d] the participation of students in decision-making processes at both institutional and operational level'. Student representatives, normally Imperial College Union (ICU) sabbatical officers, sit on the Council, some of the Rector's

Committees and the Senate and all its subcommittees. Students are also represented on some committees and groupings outside the formal structures. The Rector and the ICU President have regular informal meetings, as do the Pro Rector (Educational Quality) and the ICU sabbatical officers.

86 Each faculty has its own Students' Union with a president and an academic affairs officer; the faculty president liaises with the faculty principal and faculty administrator, and the academic affairs officers liaise with departmental representatives and sit on undergraduate studies committees.

87 The undergraduates in each department elect representatives to serve on the SSC and other departmental committees; by way of example, during the DAT in physics, the audit team noted that a postgraduate student who recently graduated from one of the Department's MSc programmes served on the Teaching Committee in Physics. Arrangements for representation from students on taught postgraduate programmes vary between departments but most have a postgraduate SSC. The SED commented that where postgraduate SSCs had been established, feedback was 'generally useful and tended to be better disseminated than [was] sometimes the case with undergraduate SSCs'.

88 In the SED, the College made very positive comments about the work of the ICU sabbatical officers on committees, pointing to a 'more focussed and informed edge to the student contribution to debates'. It also drew attention to the usefulness of the informal meetings with the Rector and the Pro Rector (Educational Quality) as a forum for sounding out student opinion on proposed developments. The SED noted that 'the contribution of the students to the committees inevitably depend[ed] on the enthusiasm and commitment of the individuals elected to serve'; financial assistance is therefore being given to the ICU to support the training of student representatives. The College has found it difficult to secure postgraduate representation on the GSEPS and GSLSM committees with responsibilities for graduate

students. In the course of the audit, the audit team heard that the College had agreed to fund an additional sabbatical post in the ICU, a Deputy President (Graduate Students), whose duties would focus on all matters relating to graduate students.

89 In the SWS and in meetings at institutional level and in the DATs, students expressed general satisfaction with the provisions for representation at institutional level and appreciation of the opportunities for open and constructive dialogue. Attention was drawn to the fact that there was no arrangement for student representation on the Management Board, the Operations Committee and the SEC, which the students considered excluded them from involvement in some key decisions. In meetings with senior staff, the audit team heard that the College had noted the students' views on such representation but considered that the business of some strategic committees which considered areas in the 'Executive remit' was not appropriate for student involvement.

90 The SWS confirmed that the system of representation generally worked well at departmental level. In meetings with students, the audit team did not encounter dissatisfaction with the provision for student representation at faculty and departmental level.

91 In meetings in the DATs, some student representatives on SSCs whom the audit team met indicated that, following meetings of their committees, they did not always receive information about responses to matters raised by the students. The College has recognised that the operation of SSCs could be improved and that decisions and resulting actions should be better communicated to students. At the time of the audit, the College was finalising good practice guidelines for SSCs which should assist in this respect.

92 From documentation and discussions in the course of the audit, the audit team learnt of some considerable disquiet among the students at the Wye Campus about the closure of some provision and the extent to which their voice would be heard by the senior management of

the College. In meetings, the team was assured that every effort was being made to ensure that both staff and students at the Wye Campus were aware of developments in this area.

93 From documentation and meetings with staff and students, the audit team concluded that the SED presented an accurate account of the College's approach to student representation and its operation in practice. The audit team welcomed the establishment of the additional sabbatical post of Deputy President (Graduate Students) as a positive contribution to improving the effectiveness of student representation.

Feedback from students, graduates and employers

94 Feedback from SSCs on undergraduate programmes is informed and complemented by SOLE which became 'fully effective in operation' in the academic year 2002-03. QARC is responsible for the operation of SOLE and its extension to cover postgraduate teaching and the experience of research students (ROLE).

95 The SED reported that response rates to SOLE had been disappointing initially but had improved as confidence in, and familiarity with, the system had grown. At the time of the audit, the range of questions was being extended to cover student support, laboratory courses and tutorials. ROLE was piloted successfully in two departments and is now in use throughout the College. The audit team saw the evaluation of the pilot and, in meetings with staff, heard that some issues for early attention had been identified, by way of example, induction procedures for research students.

96 Quantitative data from SOLE are made available to Director of Undergraduate Studies (DUGS) and heads of department, and to departmental student representatives and can be accessed on the intranet. Individual members of academic staff receive the data on their teaching from the DUGS before publication on the intranet. The DUGS check qualitative data in the form of textual comments for offensive or otherwise inappropriate content and must consult the

Deputy President (Education and Welfare) of ICU before removing any such comments. Qualitative data are discussed by SSCs but are not posted on the intranet. SOLE data are used in monitoring undergraduate programmes and also in the procedures for Personal Review and Development Planning and promotions (see paragraph 112). Annual reporting includes information on issues raised through SOLE and details of action taken in response to allow the College to monitor the effectiveness of SOLE.

97 The audit team noted plans for the introduction of on-line evaluation for taught master's courses (MOLE). Until MOLE becomes operational, feedback on taught postgraduate programmes will continue to be obtained through conventional questionnaires and then reported through the biennial programme review process to the relevant GSMC. The GSMCs also receive student feedback on the transferable skills courses through the minutes of the Academic Training Committee.

98 In addition to the formal mechanisms for gathering student feedback, informal feedback mechanisms operate effectively within departments. Students may contact their personal tutors or a member of staff with specific responsibilities, for example, a particular lecturer or the DUGS.

99 Panels conducting internal periodic reviews meet students and gather direct feedback on the operation of programmes of study. Further feedback is collected by the College through surveys of central services including the Registry, the Library, Residences, the Student Counsellors and the Careers Service.

100 The SED explained that feedback from graduates was not currently sought at institutional level as priority had been given to developing and improving methods of getting feedback from current students. The SED went on to note that many departments maintained contact with their own graduates and acquired useful informal feedback from them. The audit team would encourage the College to consider how it might systematically collect feedback from its graduates to inform development of its provision.

101 The views of employers are also gained primarily at departmental level, partly through research links and student placements. In meetings, the audit team heard that staff were encouraged to find out from their industrial contacts how well graduates from the College matched their requirements. Departments also have contacts with employers through industrial advisory boards and PSRB accreditation. The SED also indicated that at institutional level the Pro Rector (Development and Corporate Affairs) had close contact with industry and was thus able to monitor employers' opinions of the College's courses. The involvement of industrial assessors in periodic review also assists in maintaining the relevance of programmes of the needs of employers.

102 The SWS confirmed that student views were sought through a range of mechanisms, although it was not always clear what action had been taken in response. The audit team confirmed that the College had taken note of matters raised in the SWS and referred them to the QARC for action.

103 From discussion with staff and students and scrutiny of documentation, the audit team concluded that the SED represented an accurate account of the University's approach to collecting feedback from students, graduates and employers. The information in the SED on student feedback was consistent with the views represented in the SWS. The team identified as a feature of good practice the effectiveness of SOLE which has the potential to contribute to quality assurance and enhancement. The team noted, in particular, the engagement of students with the process and the use of results in the Personal Review and Development Planning and promotion processes.

Progression and completion statistics

104 Each year, the Registry prepares a range of statistical reports for the Senate and its subcommittees on progression and completion rates. These include the distribution of honours degree classifications and undergraduate examination failure rates, both by faculty and by department; results of September resit

examinations by department; research degree submission rates by faculty, department and Research Council sponsor; advanced course student failures by faculty, and completion rates of students admitted to advanced courses with non-standard qualifications. Other data reviewed include: the progress of students admitted into year two of undergraduate programmes; the progress of master's students admitted as special cases, and the monitoring of student data by ethnic origin, the latter being a new development under the College's equal opportunities policy.

105 At the time of the audit, the Registry was reviewing its interface with the Higher Education Statistics Agency and how the College analysed student retention and drop out data to produce a detailed analysis at the programme level. In the meantime, the Registry is using data produced by departments for information on student progression.

Departments are required to provide an analysis of undergraduate progression rates and failure rates for each year of each undergraduate programme in their annual monitoring reports to the discipline studies committees. The SED noted that the College had not found it 'necessary to date to set up a special body to monitor undergraduate progression and completion rates at institutional level'. The SED went on to affirm that the College was confident that its completion rate was satisfactory and that current monitoring systems would detect where action might necessary. The SED pointed to the example of high failure rates in several engineering departments having been identified and action taken as confirmation of the effectiveness of current procedures. A detailed summary report was subsequently made to and discussed by Senate.

106 The monitoring of the distribution of honours degree classifications by the Senate identified variations between certain discipline areas, particularly in relation to the award of First class honours. This led to departments being reminded to use the full range of marks in their assessments to ensure that the issue was addressed. The SED referred to

'encouraging trends to award more first class degrees' in the particular departments involved. Senate has also been actively reviewing the completion rates for PhD submissions; these did not significantly improve to meet the College's expectations until the graduate schools started both to take a revised approach to research skills training for students, and to establish and disseminate consistent and realistic deadlines.

107 A new Student Administration and Management System (SAMS) went live in August 2004. The SED noted that, when fully operational, SAMS would hold centralised, detailed student data relating to applications and admissions, enrolments, examination results, student fees and graduation. Applicants, students and College staff will be able to access these data according to their roles and responsibilities. The SED affirmed the College's confidence that the new system would improve its capability for data analysis and targeted reporting from basic summaries to complex data manipulation. The College anticipates that the facility for departments to have access to the centrally held data will enhance monitoring and review processes at local level. SAMS will also assist in providing the requisite Diploma Supplements for students.

108 The audit team reviewed both data provided in the DATs and other data available to departments, studies committees and the Senate. Reading of minutes and associated documentation confirmed that College committees were making effective use of relevant data sets in making decisions and determining policies. The team noted the enhanced data storage and analysis capability which SAMS would soon be offering. On the basis of scrutiny of documentation and discussion with staff, the team concluded that the College had effective systems in place to collect, store and analyse data, including progression and completion data, in support of its evaluation of quality and standards.

Assurance of the quality of teaching staff, appointment, appraisal and reward

109 The SED placed the College's approach to the assurance of quality of its teaching staff in the context of its Strategic Objectives and associated strategic goals, tied to the achievement of its overall mission, which includes the delivery of 'world class...education'. The SED emphasised the importance of the staff and the 'quality of their contribution and performance and the environment' in enabling teaching and research 'to flourish'. The College has established a Human Resources Strategy, revised in 2004, to cover the period 2004 to 2006.

110 The College has a policy that all members of selection panels must be trained for the task and a substantial number of staff has attended recruitment and selection training. Written guidance on recruitment and selection processes covers academic, research and support posts. Candidates for academic posts are required to demonstrate an active interest in teaching and in developing their teaching skills. A dean participates in all interviews for academic staff and, at professorial level, the panels are chaired by the Deputy Rector or one of the Pro Rectors. The probationary period is three years for non-clinical lecturers and five years for clinical senior lecturers.

111 Unless exempted on grounds of approved prior experience, all probationary non-clinical lecturers take a series of core workshops in learning and teaching and, from October 2004, have been obliged to complete an HEA accredited CASLAT. Clinical and more senior staff are also encouraged to undertake development activity. Newly appointed members of academic staff are assigned by their heads of department to an experienced member of staff who acts as an academic adviser and provides wide-ranging support, including guidance on the supervision of research students, during the probationary period. The academic adviser keeps the progress of the probationary member of staff under review and sits on the committee to

consider confirmation of the appointment. The member of staff's contribution to teaching and the feedback on that teaching is taken into account in consideration of confirmation of the appointment.

112 The College operates a system of annual Personal Review and Development Planning (PRDP), designed to provide a more effective analysis and assessment of performance and development than the predecessor appraisal system. The audit team noted that in the Guidance Notes and Checklist for PRDP used by staff with educational duties, teaching activities formed the largest group of topics on the Checklist. PRDP also draws on the results of SOLE. In discussing their Personal Development Plans with their managers, staff have to agree clear objectives using the SMART (Specific, Measurable, Achievable, Relevant, Timed) methodology. All staff undertaking PRDP reviews are required to attend initial training and refresher courses. PRDP forms are returned to the Human Resources section and completion is recorded on the staff database.

113 The Academic Promotions Committee, with 'high-level' membership conducts an annual academic promotions exercise, using standard procedures and grading criteria which were reviewed in 2003. As part of the process, all candidates are interviewed, with particular attention being paid to their commitment and contributions to teaching. While research activity is a prominent criterion for promotion, there is also provision for individuals making significant contributions to the institution's educational activities to be promoted. Documentation used in the promotions process and read by the audit team confirmed that educational activities and achievements formed a substantial element of the criteria for promotion to senior lecturer, reader and professor. Information is sought from the DUGS in the applicant's department and data from SOLE are also taken into account. If they wish, applicants may also include their PRDP forms in support of their submissions for promotion. In meetings with senior staff, the team was assured that the new process has already

resulted in individuals being promoted who would not have been promoted under the previous arrangements.

114 The SED highlighted the development of an 'appropriate reward strategy and a local pay framework underpinned by job evaluation' as a high priority in attracting and retaining academic staff. The College has developed its own framework that it believes provides a coherent reward strategy for all staff taking account of job evaluation, a single pay spine and local pay bargaining. Professors, readers and senior lecturers are eligible for performance-related pay, in assessment for which contributions to teaching are included. Every other year up to 20 members of staff gain an 'Award for Excellence in Teaching', of whom three receive a fellowship with a cash award of £1,500. Candidates are nominated by heads of department after consultation with SSCs.

115 In implementing the Human Resources Strategy, the College is making a substantial effort to promote and monitor work on equality and diversity among its staff. Two Rector's Committees take forward and monitor activity in this area: the Academic Opportunities Committee and the Equality and Diversity Committee.

116 The SED identified significant improvements in its Human Resources Strategy over recent years, particularly in the recognition of educational activities and achievements and the establishment of the new systems for PRDP, and performance-related pay. It is monitoring and evaluating the various processes systematically.

117 From reading of documentation and discussion with staff at institutional level and in the DATs, the audit team confirmed that the SED represented an accurate account of the College's approach to the assurance of the quality of its teaching staff. The team concluded that the processes were fit for purpose and operating as intended. The team considered the recognition accorded to teaching by the College, especially in the promotions exercise and the use of SOLE, as a feature of good practice.

Assurance of the quality of teaching through staff support and development

118 The SED stated that the College's key requirements for staff development and educational development activities were that they supported its strategic objectives. The Staff Development Unit (SDU) in Human Resources and the CED offer a comprehensive range of support to all involved in teaching: full and part-time academic staff; academic support staff; graduate teaching assistants (GTAs); and postdoctoral staff involved in teaching. The CED focuses on the development of teaching and learning in accordance with the current Human Resources Strategy, the Quality Assurance Policies and Procedures document, and the Learning and Teaching and e-Learning Strategies. The complementary role of the SDU covers all other types of professional development including recruitment skills, and equality and diversity issues. All departments have Educational Development Coordinators (EDCs), appointed for their interest in teaching.

119 The CED draws on input from the QARC and from the Senate to devise its annual programme and also invites suggestions from DUGS and deputy heads of division (teaching). It publicises its activities through both formal and informal methods, the latter including 'word-of-mouth' which the SED highlighted as an effective means of attracting staff who have not previously taken advantage of the opportunities offered by the CED. The CED offers teaching development grants and teaching research grants to support staff in the enhancement or investigation of aspects of teaching. The CED acknowledges the difficulty of measuring the impact of its activities on student learning but, in meetings, the audit team heard that the number of members of staff coming forward voluntarily for advice in connection with their teaching was increasing. The CED submits an evaluative report to the QARC annually.

120 A significant part of the CED's activities is the operation of CASLAT, an M-level qualification accredited by the (then) Institute

for Learning and Teaching in Higher Education and now by the HEA. CASLAT was designed for both new and more experienced academic staff and is compulsory for probationary non-clinical lecturers. Recently appointed lecturers whom the audit team met confirmed that the course had been useful in supporting course delivery. The CED report for the academic year 2003-04 showed a steadily increasing intake to CASLAT, with almost entirely 'positive and very positive' ratings from participants.

121 The SED pointed to the contribution of peer observation of teaching to the support of staff and enhancement of practice. In response to its identification of diversity of practice across faculties, the College developed guidelines for peer observation which are available on the CED website. As noted earlier (paragraph 111), all probationary staff are supported by an academic adviser. Research staff and lecturers whose appointments have been confirmed may elect to have a trained mentor. The SED noted that although take-up had been small, positive evaluation from participants had led to a decision to continue with the mentoring scheme.

122 Examples of good practice in teaching are disseminated in a number of ways including an annual summary prepared by the Registry from analysis of reviews of undergraduate teaching and termly meetings of the EDCs, the outcomes of which are reported on the CED website. The audit team found further evidence of the importance attached to teaching by the College in the provision of funding for HEA subscriptions and for attendance at educational conferences.

123 Staff involved in the support of teaching are encouraged to participate in the Supporting Learning and Teaching Programme (SLTP), which attracts about 20 participants each year. Departments are responsible for training GTAs who undertake teaching, for example, in laboratory classes or as tutors, and the CED provides support and guidance for the members of staff who provide the training. GTA demonstrators and tutors receive a half-day of practical training in the general principles of student learning, assessment and feedback at the beginning of the year, followed by specific

induction into the procedures of their particular activity. In the course of the DATs, graduate students whom the audit team met spoke positively of the training. At the time of the audit, guidelines for GTAs involved in marking student work had recently been approved by the studies committees and were made available by the CED on the intranet. From documentary evidence and discussion with staff, the team confirmed that the SED provided an accurate account of the College's approach to the assurance of quality of teaching through staff support and development. The team concluded that the relevant policies and procedures were fit for purpose and operating as intended.

Assurance of the quality of teaching delivered through distributed and distance methods

124 The College offers a range of postgraduate programmes delivered by distance-learning activities through the University of London External System. In addition, until 2004, there was an MBA programme delivered by the College in Singapore; the final cohort will graduate in November 2005. The other postgraduate programmes are supported by distance-learning programme (DLP) support staff based at the Wye Campus except for the MSc/Diploma in Drug Use: Evidence-Based Policy and Intervention, which uses the University of London External System for non-academic administration.

125 Quality assurance of the DLPs is shared between the College and the University of London; a Quality Assurance Schedule defines the division of responsibilities. Within the College, all such programmes are monitored by the DLP Policy Committee (DLPPC). The DLPPC receives reports on the operation of the existing postgraduate DLPs and considers possible future developments. Quality assurance procedures for approval, amendment, monitoring and review of DLPs and elements are identical to those for College-based postgraduate provision. Assurance of standards is secured through the involvement of external

examiners and standard reporting structures to graduate schools committees.

126 The development of new distance-learning modules involves an initial review by a peer group, production of detailed module outlines and preparation of the necessary materials. The final draft is externally peer reviewed. The DLP is moving progressively towards electronic delivery of all new course modules to assist with review and updating of study materials.

127 The SED outlined difficulties in gathering feedback from students on distance-learning courses and the poor response rate to traditional approaches such as questionnaires. At the time of the audit, the DLPPC was seeking to improve monitoring and evaluation of the distance-learning provision through on-line methods.

128 In its discussion of the College's approach in this area, the SED did not include specific reference either to the *Guidelines on the quality assurance of distance learning* (the *Guidelines*) or to the revised *Code of practice, Section 2: Collaborative provision and flexible and distributed learning (including e-learning)* which has subsumed the *Guidelines* and applies from September 2005. The audit team would encourage the College to take account of the revised section of the *Code* on collaborative provision as it develops its approach to delivery through distributed and distance learning. From its scrutiny of relevant documentation, the team concluded that the SED represented an accurate account of the College's approach in this area and that the arrangements for the quality assurance of programmes delivered through distributed and distance learning were appropriate and robust.

Learning support resources

129 The SED identified learning support resources as 'principally' the College Library, the IT infrastructure and learning and teaching space. It also pointed to the support offered for specialist learning by the Disabilities Officer. The Operations Committee is responsible for the strategic management of learning support

resources. The Deputy Rector represents all academic services on the Operations Committee and the Director of Information and Communication Technologies and the Director of Estates are also members of the Committee. There is a College Libraries Committee which is a subcommittee of the Senate. In response to the previous audit report, the Directors of Library Services and of ICT are members of the QARC.

130 In the SED the College stated that updating the library strategic plan for 2002 to 2005 was a priority to set the strategic direction for the service through to 2008. The College currently offers a library service at all of its campuses. The main central library is on the South Kensington Campus and houses two-thirds of the total printed holdings, including journals and texts on all subjects in the College curriculum. Collections from the departmental libraries are increasingly being moved to the central library to make more efficient use of resources.

131 The audit team saw a draft of a far-reaching 'Vision for the Imperial College Library' which was part of the development of the new library strategic plan. This document confirmed the plans for continued consolidation onto the central library site and a major shift away from printed resources towards on-line access in response to a need to alleviate the acute pressure on physical space in the College. At the time of the audit consultation on the Vision had begun, and this had involved the Students' Union, which had already provided some positive initial feedback.

132 There is a number of mechanisms for ensuring the effectiveness of library services. Minimum service level definitions have been set and are used to measure performance; they are reviewed and updated annually. Students are represented on the College Libraries Committee and also provide feedback to Faculty Services support staff through committees at departmental, faculty and campus level. The College has found that general user surveys are less effective at getting feedback and, consequently, the other mechanisms are used more frequently. Additional evaluation has taken place through focus groups in the Faculty

of Medicine and, at the time of the audit, the Library was considering extending this to other faculties. The President and a Deputy President of the Students' Union also meet the Director of Library Services termly to provide feedback.

133 The College has an e-learning strategy as part of the Learning and Teaching Strategy for integrating ICT into undergraduate and postgraduate learning and teaching both on and off-campus. An e-Learning Committee was formed in 2001 with wide representation from different sectors of the College to oversee the development of authoring and delivery standards for learning technologies. The Committee also has the aim of fostering and reviewing academic bids for e-learning and the use of learning technologies. The College has been active in promoting e-learning and supports a number of e-learning technology posts previously funded by HEFCE. In 2004, the CED and e-Learning Committee organised jointly a symposium on e-learning.

134 The College's e-learning strategy is based around a VLE. In meetings, the audit team was informed of the latest developments in e-learning, including the appointment of a half-time member of staff to provide technical support for the VLE and plans for another half-time post at the infrastructure level. The team heard of 'considerable progress' including the formation of the e-Learning Committee and the planned appointment of an e-learning specialist in the Faculty of Medicine to help develop the VLE portfolio. Use of the VLE is uneven across the College with most take up evident in the Biological Sciences and the Tanaka Business School. In the documentation available to it, the team did not see specific targets for the implementation of the VLE across the College. The College may wish to consider the establishment of a timetable for the implementation of the VLE across the College in support of delivery of its e-learning strategy.

135 ICT obtains feedback by various mechanisms: departmental representation is effected through the ICT User Panel, and the Departmental Users' Committee reports on strategic matters to the Information Technology

Services Strategy Group. The SED noted that there was no direct student feedback but signalled plans to conduct an on-line user survey in the academic year 2004-05.

136 The SWS reported the student view that the College offered good provision in terms of learning resources. The computing and library facilities were considered to be 'excellent' and the extension of opening hours for the main library during the main examination period had been appreciated. Conversely, the students would welcome similar longer opening hours at the libraries on the other campuses. In meetings with the audit team, students expressed some concern that the move to consolidating library resources at the central library might result in information being more difficult to locate. The students generally reported a high level of satisfaction with computing facilities available to them.

137 From documentary evidence and discussion with staff and students at institutional level and in the DATs, the audit team was able to confirm that the SED represented an accurate account of the College's approach to the assurance of its learning resources. The team concluded that the College took due account of user feedback and maintained an effective institutional overview of its learning resource provision.

Academic guidance, support and supervision

138 The SED highlighted the identification in the 2002-2005 Strategic Plan of the 'further development of an accessible and effective system of student support' as a priority for the College'. The SED continued '...the College aims to provide a variety of means to guide and support students to the successful completion of their studies and is continually seeking to enhance them'. Responsibility for student support is largely devolved to departments, seen as best placed to identify and support students encountering difficulties, but 'within a general structure which applies across the College'. All students have a personal tutor who 'operates under the direction of and works

closely with a department's Senior Tutor'. The Senior Tutor is responsible for monitoring the progress of undergraduate students through individual progress reports from personal tutors. The system is designed to identify at an early stage undergraduate students failing to progress so that appropriate and timely remedial action can be taken. There are slightly different arrangements in medicine but the same principles of support and monitoring apply. Frequent interaction between tutor and tutee is expected in the first year with less frequent contact in subsequent years.

139 Research students may have one or two supervisors depending on their departments and on there being another academic with the necessary expertise. Some taught postgraduate students have a personal tutor who may also be the programme organiser. All departments have a Director of Postgraduate Studies and/or a Postgraduate Tutor who acts as an additional independent source of guidance and help for both research and taught postgraduate students; the audit team confirmed that this provision met the expectations of the section of the *Code of practice, Section 1: Postgraduate research programmes*.

140 The SED cited frequent commendations of the personal tutorial system in subject review reports as evidence of its effectiveness. Nonetheless, the College recognised that there had been no recent formal internal review of its approach in this area. Accordingly, at the time of the audit, it had recently evaluated its practices, resulting in the production of guidelines for personal tutors and a job description for senior tutors. A workshop on being a personal tutor is attended by all non-clinical probationary lecturers.

141 Based on a response rate of 8.6 per cent (approximately 1,000 students) of the total student population to its survey, the SWS reported that '77% of the undergraduates and postgraduates responding felt they understood the role of a personal tutor and 60% felt that their tutor had a good understanding of the issues faced by students'. Two-thirds were satisfied with their tutors and 59 per cent felt

the system worked well for them. The SWS noted that the figure of 59 per cent included 68 per cent of students from the Faculty of Engineering, and that the percentage for the rest of the College was below 50 per cent. The SWS concluded that while the personal tutor system 'on the whole work[ed] well, there need[ed] to be more done to ensure consistency across the College and to help those whom the system [was] currently failing'.

142 The SWS reported that its survey showed that research students' satisfaction with their PhD supervisors was generally high, with the students finding that their supervisor provided pastoral as well as academic support. The SWS also noted that while most research students also felt able to discuss personal problems if these were affecting their studies, a significant number did not feel they could discuss personal issues with their supervisor. The SWS went on to say that about a third of research students reported that they did not know what to do if they were not happy with their supervisory arrangements.

143 The College encourages undergraduate students to reflect on their learning through personal development planning (PDP). The PDP scheme is overseen by the QARC, with the expectation that departments involve personal tutors in supporting students to develop personal development plans. A website has been created for use by students to facilitate PDP. Few of the students whom the audit team met had pursued any PDP activity. In meetings with the audit team, staff acknowledged the variability in uptake for PDP, recognising that it was a challenge to engage both students and staff.

144 The College publishes an attractively produced book with information on learning and transferable skills entitled 'Learning to Learn', which it provides to all students during their first term at the College. In meetings, the audit team encountered only one student who had made significant use of this useful resource. If required, most departments provide extra or remedial tuition which includes extra classes in mathematical skills. Students whom the team met confirmed the usefulness of such support.

145 There is an English Language Support Programme for students who are non-native speakers of English. It provides activities including pre-sessional English courses, testing and teaching of postgraduate research students to help them to satisfy the College's entry requirements, and the delivery of a range of English and other language classes across College campuses. At institutional level there are Writing Fellows who will help students in a report's construction and the organisation of ideas.

146 Information about individual programmes and their methods of assessment is provided to students through handbooks, web-based material and face-to-face meetings. For students undertaking placements overseas, there is a College Placement Abroad Handbook that complements information provided by departments. The College has a Student Placement Officer to help departments with placement learning. He also issues guidance on good practice to the departments offering degree programmes which incorporate a compulsory period abroad; the audit team confirmed that the guidance took account of the section of the *Code of practice* on placement learning. Each department appoints one or more placement coordinators to support its students on each type of placement, including undertaking visits to such students. At the time of the audit, the College was still working towards alignment with the *Code* for home-based placements, including the production of generic guidance to cover all placements.

147 There are well-established policies and procedures relating to the training of research students which have been updated in the light of the revised section of the *Code of practice* on postgraduate research programmes. These are both documented and communicated to students through the Academic Regulations, the Students' Handbook, the Research Students and Supervisors: their responsibilities and duties publication, and through prospectuses and the web. The graduate schools have developed comprehensive training programmes and modules in transferable skills as well as optional workshops and lectures on subjects such as

career planning and entrepreneurship. In meetings with the audit team, students confirmed the value of the graduate schools' training programmes. The research training provided by departments is periodically reviewed involving both external and College assessors who visit departments and report their conclusions to Senate. The reviews also identify and disseminate good practice.

148 Supervisors make six monthly progress reports on all research students on which the students may comment. The reports are seen by departmental postgraduate tutors who keep a watching brief on students' progress in their department. A recent change in regulations has been made to require PhD students to submit their theses within 48 months of initial registration, following concern being raised about previous completion rates. The timing for submission of a transfer report for MPhil to PhD registration has also been reduced. In meetings, staff members suggested that completion rates were affected by students being enticed into well-paid jobs before they had completed the writing up of their theses. The audit team met some research students who contributed to teaching; while they had enjoyed the teaching, some reflected that it had taken more time than they should have allocated and was delaying the submission of their theses. The SED noted that the College planned to review its overall approach to postgraduate research against the guidance of the revised section of the *Code of practice* on postgraduate research programmes in the academic year 2004-05.

149 The College has a Widening Participation Strategy that focuses on raising the aspirations of students from the lower socio-economic groups and communities. The full-time Widening Participation Officer and the student recruitment team visit schools and colleges to talk to sixth form students about applying to higher education and providing them with practical advice. The College has other projects designed 'to encourage state school pupils to fulfil their potential'. These include the distribution to schools of a computer-aided learning package in mathematics and the

Pimlico Connection Student Tutoring Scheme where College students help with the teaching of science in local schools, an outreach programme of summer school subject-specific courses, and an e-mentoring scheme for sixth formers who are considering studying medicine. The audit team noted in particular the INSPIRE (Innovative Scheme for Post-docs in Research and Education) project that enables the College to employ postdoctoral research assistants who spend part of their time in a partner school providing teaching and assistance with the delivery of the science curriculum to pupils aged 11 to 18. The scheme started in 2002 with two schools and, at the time of the audit, involved 12 schools. The first three postdoctoral students recruited have successfully obtained their Postgraduate Certificate in Education and two of these have permanent teaching appointments, one in a partner school. An arrangement has also been established with Thames Valley University (TVU) through which students will be admitted to the College's medical degree having completed a Foundation Year at TVU to the required standard.

150 The audit team reviewed samples of all the information given to students and a report resulting from a review of postgraduate training. Students whom the team met, with the exception of those in one of the DATs (see paragraphs 183 and 184), were satisfied with the quality and accuracy of the information available to them and with their access to and the academic support provided from their tutors and by other academic staff. In meetings with the team, the College was firm in its belief that there were enough networks and individuals to support all types of students, judging that it was not essential that all students were aware of the full range of information and support available, as long as they had a primary contact, for example, a personal tutor to guide them to the most appropriate form of assistance. In this context, the audit team noted the effective support and provision of information provided to postgraduate students.

151 From scrutiny of documentation and meetings with staff and students, the audit team concluded that the SED presented an accurate account of the College's approach to the academic support of all categories of student, which was in accordance with the *Code of practice*. The team found that, overall, the systems were fit for purpose and operating as intended. The team considers the College's approach to outreach activity, exemplified by the INSPIRE project and the collaboration with TVU to be a feature of good practice.

Personal support and guidance

152 In the SED the College offered the view that 'academic and personal support services for students inevitably link[ed] and overlap[ped]'. The Pro Rector (Educational Quality) oversees the College's welfare support structure. He is responsible for monitoring and enhancing the provision and chairs the Student Welfare Committee. He is the line manager of the student counsellors, the disabilities officer and the five College tutors. College tutors have a broad remit, overseeing pastoral and academic welfare, providing personal support to students who wish to discuss confidential matters away from their departments, and dealing with major cases where a student's study has been disrupted. They meet fortnightly with senior and postgraduate tutors to identify generic issues. They are members of the studies committees and the Senate and are responsible for the management of wardens of College halls of residence.

153 Details of the welfare services provided by the College are provided to students in a College Student Handbook which is sent to them before they arrive. The handbook includes information on health, counselling, IT provision, careers, making complaints, the Students' Union Advice Service, and College tutors. It also has financial information, advice relating to being a student and details of support facilities including learning support, the Union (ICU) and sports facilities.

154 The College organises a week-long induction programme for all new undergraduate and postgraduate students at the beginning of the academic session. Students are given presentations about each of the support services and about the ICU, and are introduced to their departments' teaching and learning facilities, its practices and procedures, and the Library. They also meet their personal tutors. A Freshers' Fair, organised by the ICU, introduces students to the wide range of student societies. The graduate schools and departments similarly induct new postgraduates. Postgraduate students whom the audit team met reported that the induction programmes had been tailored to individual requirements.

155 The International Liaison Office provides specialist support for international students which includes a 'meet and greet' service on their arrival in the UK, a welcome desk in the week prior to the induction week and social events during induction. Its other roles are to operate a visa renewal scheme and to offer advice on immigration and asylum matters. The College's approach in this area reflects the fact that over 40 per cent of its students are international and are therefore considered to be part of the mainstream student body. In meetings with the audit team, international students confirmed the integrated nature of the student body.

156 All first-year undergraduates are guaranteed a place in a hall of residence. Wardens in the halls of residence, their assistants and sub-wardens, who are senior students, form a team and are a major part of the College's pastoral care system. Eight per cent of the accommodation in halls is allocated to members of the warden team.

157 Students themselves also provide support through a 'buddies' scheme organised by the ICU. The College is examining ways in which it might provide additional support to the ICU in operating the scheme. The ICU Student Advisor provides advice to students on a variety of welfare topics and also on matters relating to students' studies such as appeals.

158 Students have access to College-based medical and dental practices. The College's Student Counselling Service offers an independent service to students who refer themselves or who are referred by tutors. Students are invited to complete a questionnaire on their experience of the counselling service to inform improvements. There is a full-time Disabilities Officer and a scheme of disabilities officers in departments to act as a first point of contact.

159 Careers education, information and guidance (CEIG) are provided by the Careers Advisory Service (CAS). The Service works with the Careers Advisory Committee to promote and enhance CEIG throughout the College. The Committee has developed guidelines for undergraduate and postgraduate students, modelled on the relevant section of the *Code of practice*, for use in departments. Departments appoint a staff member as a careers adviser and these are trained by the CAS. In 2004, the CAS's commitment to 'quality of service delivery and the service itself was judged as matching the Standard and performing within a national quality framework' in a matrix assessment by the Guidance Accreditation Board.

160 Cooperation, within the limits of strict confidentiality, between the College's support services on student welfare problems, is facilitated through formal and informal contact between the College tutors and through the Student Welfare Committee (SWC) and its members. Each service makes an annual report to the SWC. The SWC's composition was revised in 2004 to incorporate the remit of the former International Students Sub-Committee and to have the Pro Rector (Educational Quality) as its chair. Its status was also changed so that it now reports formally to the Senate. At the time of the audit, the SWC had recently alerted the College to the need for more financial assistance for some international students and this led to increases in the College Hardship Fund which is administered by the Student Support Officer in the Registry.

161 In 2004, the ICU surveyed the student body on their experiences with the advisory services available from both the College and the Union. Where dissatisfaction was expressed, the matter was referred to College officers for investigation and action as appropriate. It was found that the major cause of dissatisfaction was a mismatch between student expectations of what the College would offer in terms of advisory services and the nature of the support available. The College has taken steps to clarify the information provided to students to avoid such misunderstandings in future, as was confirmed in the SWS.

162 In meetings, the audit team discussed the provision of welfare services with staff and students. Staff with responsibility for the services were clearly committed and engaged with meeting the needs of students. The team noted the range of support systems at departmental and College level, with College tutors being available to oversee the provision and handle special cases. From these discussions and documents available to it, the team confirmed that the SED provided an accurate account of the College's approach to the provision of personal support and guidance. The team concluded that that the welfare and pastoral support provided to students was generally fit for purpose and operating as intended.

Collaborative provision

163 At the time of the audit, the College had only two collaborative arrangements in taught provision, both of which were with institutions in London. The SED affirmed that it was not part of the College's educational strategy to develop other collaborative arrangements except where 'opportunities might seem advantageous to the College'. There is a programme in Physics with Studies in Music Performance offered with the Royal College of Music and an MSc in Chemistry with Conservation Science offered with the Royal College of Art and the Victoria and Albert Museum; both programmes have small numbers of students. At master's level, there is

an MA in Industrial Design Engineering offered with the Royal College of Art, an MSc in Transport offered in conjunction with University College London, and an MSc in History of Science, Medicine and Technology with University College London and the Wellcome Trust Centre for the History of Medicine. The MSc in Advanced Methods in Taxonomy and Biodiversity is partially taught by members of the Natural History Museum, and College staff contribute to an MSc in Remote Sensing which is run by University College London.

164 Responsibility for managing the collaborative arrangements varies according to the programme concerned and is clearly defined. By way of example, the MSc in Transport is wholly administered by the College as an internal programme but in the case of the MSc in Remote Sensing, the College simply contributes to the teaching on a programme run by University College London. Collaborative programmes are subject to the same scrutiny processes as internal programmes. Thus the MSc in Chemistry with Conservation Science was subject to the same two-part approval process as for a standard College undergraduate programme, and the collaborative postgraduate programmes have been reviewed biennially by the graduate school committees.

165 The SED pointed out that the taught collaborative programmes were established prior to publication of the section of the *Code of practice* on collaborative provision and acknowledged that not all the written agreements had yet been updated in line with the *Code*. The SED went on to argue that 'the effective operation of the courses over a number of years was evidence that for the majority of programmes no need for review [was] urgently required'. The audit team noted that the MSc in Chemistry with Conservation Science had run for a number of years without a formal written agreement. The Science Studies Committee scrutinised the programme in 2004 and concluded that the administrative arrangements were unsatisfactory and directed that a Memorandum of Agreement be

established urgently. In this context, the team welcomes the College's recognition that there is more work to be done in formalising its collaborative arrangements to ensure that it meets in full the expectations of the section of the *Code* on collaborative provision.

166 The College has two overseas collaborative arrangements whereby PhD students undertake part of their research work in Europe. These arrangements follow standard College procedures and were approved by the Senate. Agreements for joint research degree schemes made since 2001 were stated in the SED to be in line with the *Code of practice*.

167 In one of the DATs, the audit team met students from a collaborative programme who were enthusiastic about their experience. Overall, the College's collaborative provision is small scale but the team noted that monitoring arrangements had been effective, having identified weaknesses in the operation of one programme.

Section 3: The audit investigations: discipline audit trails and thematic enquiries

Discipline audit trails

168 In each of the selected DATs, appropriate members of the audit team met staff and students to discuss the programmes, studied a sample of assessed student work, saw examples of learning resource materials, and studied annual module and programme reports and periodic reviews relating to the programmes. Their findings in respect of the academic standards of awards are as follows.

Bioengineering

169 The scope of the DAT was the BEng/MEng in Biomedical Engineering within the Department of Bioengineering. The DSED was written for the purposes of the audit. The first cohort was admitted in the academic year 2002-03 and, at the time of the audit, the BEng students were sitting their final assessments and the MEng students were completing the third

year of their studies. Programme specifications were provided for each of the awards and were referenced to the *Subject benchmark statement* for engineering. There was no explicit reference to the *Code of practice* or the FHEQ.

170 First stage approval for the programmes began in 1996 and approval to operate was obtained in 1998, aimed at a first intake in 1999. First stage approval did not involve external input as it predated the College's current requirement in this respect. In the event, no students were admitted until 2002. In discussion with the audit team, staff attributed the delay to prolonged discussion with the Faculty of Medicine about a proposed linkage of the BEng programme with progression to an accelerated medical degree programme in that Faculty. Terms for articulation with provision in the Faculty of Medicine had still not been agreed when the programme started. Graduate entry to the Imperial College School of Medicine is expected to commence in 2008 and it is expected that places will be offered to graduates in Biomedical Engineering.

171 At the time of the audit, two annual monitoring reports had been produced in line with College policy and had been scrutinised by the Engineering Studies Committee. The audit team noted that when the first students were admitted to the course the programme structure had not been fully developed. It was clear to the team that routine monitoring processes at departmental level had resulted in changes to the programme being implemented swiftly in order to counter perceived weaknesses in delivery. The cumulative effect of College policies and the approach taken by the Department made it difficult for the team to distinguish the process of approval from that of annual monitoring and review. Further, second stage approval had not been completed by the time the BEng students were sitting their final examinations, seven years after first stage approval. Although technically second stage approval was completed within the College's deadline of within two to three years from the start of the delivery of the programme, the team noted that the first three years of the

programmes had been delivered, before the second stage of the approval process had been completed.

172 From the programme specifications, the audit team found that most of the delivery for the two awards was in common with the exception of year three of the MEng programme which is delivered separately and covers much of the M element of the award; the team also deduced that the fourth and final year MEng programme was identical to the third and final year of the BEng programme. Progression to year three of the MEng programme requires a 60 per cent average over years one and two of the BEng programme. The programme specification did not indicate alignment of the modules with the level descriptors of the FHEQ, nor did it include guidance about progression through levels H and M, and it was therefore difficult for the audit team to distinguish which parts of the programme were at H or at M level. The programme specification for the MEng included two learning outcomes additional to those specified for the BEng, but they were not identified as M level although they were assigned to year three of the programme.

173 The programme specification did not include any information about the modules for the third year of the MEng programme, although the first cohort of MEng students was at the end of this part of the programme at the time of the audit. From documentation provided by the College in the course of the audit visit, the audit team learnt that half of the third-year MEng modules were at M level and predominantly taken from programmes at M level in electronic and electrical engineering and mechanical engineering. Documentation available to the team, including the programme specifications, did not indicate how the H-level prerequisites for these modules were fulfilled.

174 The DSED explained that the final years of the BEng and MEng programmes were 'continually revised' by the Teaching Committee to take account of developments within the discipline. As responsibility for the approval of certain types of modification to courses, for

example, withdrawal of modules, is delegated to the Engineering Studies Committee, in practice it approves the curriculum on a year-by-year basis. The curriculum for year four of the MEng programme was approved by the Committee in May 2005, as the students were nearing the end of year three. This curriculum for year four differs from that in the programme specification in that separate pathways are specified for the students depending on their elective modules from year three and there are a number of additional modules.

175 From initial consideration of documentation, it was not clear to the audit team how much of the newly approved final year of the MEng was in common with the final year of the BEng programme. The final year projects for both BEng and MEng students have a common code and additional documentation provided to the team in the course of the audit indicated that this was a level M module. The DSED stated that MEng students also undertook 'some extension exercises' in one of the fourth year modules depending on their specialisms in year three. In the final year of the BEng programme, students follow modules at H or at M-level, in common with final year MEng students, but the absence of a clear institutional coding system identifying modules by level exacerbates problems of differentiation between the BEng and MEng routes. Equally, the year three BEng students take several M level modules in their final-year without being required to meet the 60 per cent progression requirement applied to the MEng students following the same modules.

176 The assessment scheme across the programmes is also not clearly identified at different levels of the FHEQ and there is a lack of differentiation between H and M-level outcomes in the modules. This is particularly acute in the assessment for the final year project, and it seemed to the audit team that a MEng student could achieve a Pass grade without having demonstrated 'more creativity' as required on the basis of their M-level study in year three. The team acknowledged that the programme was first developed before the

FHEQ was in existence but could not find any evidence of structured and systematic engagement with the levels descriptors of the FHEQ during the subsequent extended approval process for modules.

177 From its examination of documentation, the audit team formed the view that MEng students might be required to progress to M-level work in their third year without preparation from H-level work. Documentation supplied to the team in response to its enquiries in the course of the audit visit set out developments in the programme that had not been reflected in the original DSED and had not been included in the supporting documentation for the DAT. The team concluded, from its consideration of documentation and discussion with staff of the curriculum and assessment regime for the BEng/MEng in Biomedical Engineering, that it would be advisable for the College, in the context of the FHEQ, to review its approach to programme structures to provide assurance of organised academic progression through the curriculum, with particular reference to the balance and scheduling of the H and M-level course elements in years three and four of undergraduate programmes. In this context, the team considers that a more evaluative and analytical consideration of annual monitoring reports by the Engineering Studies Committee might have identified the potential difficulties inherent in the programme structure.

178 Progression data for the 2002 and 2003 entry cohorts were made available to the audit team. The programme team had noted a high failure rate, also noted in external examiner reports, in year one for both cohorts which has been closely monitored. Following the identification of this problem, the content and delivery of the programme were modified and tests were introduced to monitor learning progression. At the time of the audit, it was too early to judge whether this remedial action had been effective in improving progression rates, but minutes of the Engineering Studies Committee seen by the team acknowledged that the situation had not been totally rectified.

179 Because of the multidisciplinary nature of the curriculum three external examiners have been appointed to the programme. Comments in the external examiners' reports were all reported in the annual monitoring statements considered by the Engineering Studies Committee; and also mentioned in the departmental submission for the second stage of the approval process.

180 There is a documented assessment strategy including details of a standardised approach to pass grades for individual written examinations and coursework and overall module pass marks across all four years of the curriculum. The programme documentation provided to staff and students also makes clear the contribution to the final classification from each stage, including the first year, which was in line with standard College policy. The system for redeeming failure in individual modules through supplementary qualifying tests was consistent with that for other programmes in the Faculty and was explained in documentation for students. One set of assessment criteria is provided for all methods of assessment and operates across all levels of the programmes.

181 The audit team reviewed a sample of student work from years one and two which had been seen by the external examiners and noted that the external examiners had confirmed that the work was of an appropriate standard. The team did not view assessed work from year three of the programmes as, at the time of the audit, it had not been considered by external examiners or assessment boards. From external examiners reports and the relevant sections of the programme specifications, the team concluded that the standard of student achievement for the first two years of the programme was appropriate to the titles of the awards and their location within the FHEQ.

182 Detailed handbooks are produced for each year of the programme and contain sufficient information for students to understand overall learning and assessment requirements. The level at which particular modules are set is not

included and the relative weighting of the modules is described as 'approximate' and 'subject to change through a process of internal or external course review'. The audit team considered that the handbooks were not clear in setting out for students the balance of the individual modules and their contribution to the overall assessment regime. In the view of the team, this lack of definition was exacerbated by the programme structure as a whole not having been delineated prior to the course being delivered for the first time.

183 The prospectus for entry in 2005 includes reference to the accelerated route to the medical provision which the College was open in acknowledging as an error. The audit team confirmed that this had been rectified for future editions of the prospectus. The team noted that, nevertheless, at the time of the audit, the departmental website still made reference to progression to programmes in medicine.

184 Although student feedback within the Department had not indicated confusion among these students about their future options, some students seen by the audit team were still unclear and disappointed about the career progression arrangements. In preparing for Stage 2 approval, the programme team expressed regret that it had not managed to secure the guaranteed progression route to the medical provision but maintained an expectation that a significant number of the students would apply for graduate entry to medical schools.

185 The submission for Stage 2 approval pointed to the College funding regime having resulted in the programme being 'highly under-resourced' in terms of teaching space and teaching staff, but indicated that the situation should improve once retrospective funding reflecting increased admissions began to provide an adequate income for the Department. The programmes draw on the laboratory resources of several departments, including mechanical and electrical engineering and medicine, with concomitant problems in space allocation and timetabling due to this lack of ownership of the facilities.

186 In meetings with the audit team students confirmed that library provision was sufficient to their requirements. The students reported that there was pressure on the dedicated computer provision within the Department due to building work for the new Institute of Biomedical Engineering. Staff indicated that this was only a short-term problem and a remedy was in hand.

187 In accordance with College guidelines, all students are allocated a personal tutor offering both academic and pastoral support. Additional learning support has been provided through a series of formative tests, the results of which are available to staff on the intranet so that any need for counselling or remedial support can be identified and offered as necessary. Students are informed of progress in both formative and in-year summative assessments by their personal tutors. The Department has a policy of providing a two-week turnaround on assessed work; in meetings with the audit team, both staff and students confirmed that this expectation was not always met. In general, students whom the team met expressed satisfaction with the support that they received from their tutors, commenting in particular on the benefits of the close relationship with staff that was possible in a relatively small department.

188 Students elect a representative for each year of the programme and a departmental representative to channel feedback between the student body, the DUG and the Head of Department. Discussions of matters of interest to the students take place in the SSC which meets once each term. The audit team noted examples of action taken in response to student feedback, including the provision of additional tutor support for classes where students were experiencing difficulties and changes in response to poor feedback about tutors assigned to particular modules.

189 Students on the programmes represented the highest response rate in the College to SOLE. Analysis by the audit team of comments in the SOLE data suggested some dissatisfaction with poor organisation of some of the teaching

on a number of modules. The team saw evidence that the programme team had responded appropriately to critical comment from students arising during the first year of the delivery of the programme.

190 On the basis of documentary evidence and meetings with staff and students, the audit team confirmed that notwithstanding the resource constraints noted, the quality of the learning opportunities was suitable for programmes of study leading to the named awards.

Civil and environmental engineering

191 The DAT was based on the MSc programmes offered by the Department of Civil and Environmental Engineering. The 25 programmes are arranged in four generic 'clusters' as follows:

- **Advanced Structural Engineering:** Concrete Structures, Structural Steel Design, both offered in combination with Business Management or Sustainable Development, Earthquake Engineering and General Structural Engineering.
- **Environmental Engineering:** Environmental Engineering and Hydrology for Environmental Management Engineering, both offered in combination with Business Management or Sustainable Development.
- **Geotechnics:** Engineering Geology, and Soil Mechanics, offered with Business Management or Sustainable Development and Soil Mechanics and Engineering Seismology and Soil Mechanics and Environmental Geotechnics.
- **Transport:** Transport, and Transport in combination with Business Management or Sustainable Development. The MSc in Transport is a joint programme with University College London, managed by the College.

192 The DSED was written for the purposes of the audit and a full set of programmes specifications was appended.

193 In October 2003, 'a comprehensive review' of MSc programmes in the Department led to 'a major re-structuring' which included the 'clustering' of the programmes into cognate groupings and 'increased coherence and coordination and conformity between what had previously been independent courses, and more common teaching'. The DSED reported that it had facilitated the 'management and delivery' of the programmes among other benefits of greater harmonisation. The discipline went on to claim that 'the new arrangements [had] proved highly effective, achieving higher pass rates and distinction rates, with intakes rising dramatically with maintained or raised entry standards'. Information seen in the course of the DAT verified that this claim was justified.

194 The programme specifications follow the College's standard format. The preamble states that the specifications 'provide a concise summary of the main features of a programme', which the audit team found to be true of the majority of the specifications. Others were not so distinct, with programmes leading to different awards having identical aims and learning outcomes. The team also noted differences in the specification of pass marks.

195 The DSED stated that the 'learning outcomes conform[ed] to generic quality descriptors specified by the FHEQ for master's level training and qualifications'. The audit team noted that generic descriptors for engineering were identified as the learning outcomes for these specialist civil engineering programmes and that generic statements of learning outcomes were taken verbatim from the *Subject benchmark statement* for engineering. In addition, the learning outcomes specified for some of the programmes did not reflect their significant design content. In meetings with staff, the team heard that staff did not view programme specifications as documents to inform students but rather as an element of the GSEPS approval processes. When it reviews and updates the programme specifications, the Department may wish to consider how they might be used to provide an additional and

accessible source of information for students about their programmes of study.

196 The DSED included tables of data on recruitment for the previous three years, entry qualifications for the previous year, and Distinction, Pass and Fail statistics for the previous two years. It reported improvements in performance in all these areas over the previous three years, with admissions increasing from 110 to over 200, Distinctions awarded increasing from 13 to 19 per cent and failure rates declining with the exception of one programme cluster, where remedial action is being taken. The data are broken down in various ways to allow for analysis of the figures by category of student. The audit team concluded that the Department was making appropriate use of statistics in its approaches to quality management and the assurance of standards.

197 The Director of the MSc Programme (DMP) and the Quality Assurance Coordinator (QAC) are responsible for quality assurance and enhancement. The DMP chairs the MSc Working Group, comprising the cluster directors and the coordinators for the Business Management and Sustainable Development modules. The QAC maintains an independent overview of policy, issues and developments relating to quality assurance for all the Department's academic activities. Annual internal monitoring involves 'the content and delivery of course being reviewed collectively at Section and Cluster level with the process informed by staff meetings, exam performance, annual External Examiners' reports, liaison with industry and College based reviews'. Students complete questionnaires on all modules and this also feeds into reviews. Outcomes of the monitoring feed into the subsequent year's programme delivery. Reports of cluster reviews are incorporated into a departmental annual monitoring report which is reviewed by the Departmental Management Committee (DMC).

198 Biennially, the 'GSEPS undertakes reviews of all MSc courses' in accordance with College requirements. The review involves the Department completing a pro forma and

providing supporting data and external examiners' reports. Queries may be raised with the Department by the GSEPS before the review is signed off. The only comment on this process or its outcomes in the DSED was that 'it [might] prompt curriculum changes'. The DMC monitors the outcomes of all external reviews, including accreditation visits, of the programmes. In the DSED, the Department expressed its confidence that 'the courses remain[ed] relevant and up to date' and that 'the curriculum review processes work[ed] effectively'. The audit team concluded from review reports, minutes of meetings and discussions with staff that review processes were undertaken seriously and achieved their objectives.

199 External examiners' reports are discussed in cluster and GSEPS reviews, but are also considered centrally in accordance with standard College procedures. At departmental level, the DMC monitors the process for consideration of and response to external examiner reports, and all cluster heads are asked to confirm to the head of department that they have addressed any issues in an appropriate manner. The GSEPS also monitors the processing of external examiner reports. External examiners review and comment on draft examination papers and view samples of student work, dissertations and examination scripts. External examiner reports seen by the audit team included favourable comment on their involvement in the assessment process and on the high standard required of and attained by the students.

200 The review and restructuring of the MSc programmes included work 'to ensure closer coordination and conformity in assessment'. The review established the articulation of definitions for Distinction and Fail across the programmes. The programme specifications generally state that a Fail occurs at 39 per cent and describe the 40-49 per cent marks band as 'representing a barely acceptable performance', while the overall pass mark which must be achieved in examinations, coursework and dissertation is 50 per cent. The audit team noted that the Advanced Structural Engineering

cluster described the 40-49 per cent band as 'possibly recoverable'. In meetings with the team, staff explained that the apparent discrepancies in the figures quoted in the programme specifications arose from 40 per cent being used as the level marked to for a failure; 50 per cent is the Pass mark for MScs of the University of London under whose regulations the awards are made. The marks are adjusted when they are reported to the University of London so that the 40 per cent departmental Fail corresponds to a 50 per cent University of London Fail mark. In the team's view, a descriptor of marginal/unsatisfactory performance for a 10 per cent band appeared unusually large. As reported earlier (paragraph 49), a cross-Graduate Schools Working Group is currently examining the application of marking schemes in postgraduate taught programmes; in the DSED, the Department recognised the benefits of greater convergency in marking and grading and indicated that it would take note of the Working Groups recommendations.

201 Students whom the audit team met were satisfied with the feedback that they received from staff on assessed work. Feedback may be written or oral, delivered to a group or to individuals, or sent by email. While the DSED made no reference to the relevant sections of the *Code of practice*, the team was able to confirm that the approach to assessment in the department was in alignment with the *Code*.

202 The audit team reviewed a sample of assessed work, including examination scripts and dissertations across the performance range. The team was able to confirm that the standard of student achievement was appropriate to the titles and levels of the awards and to their location within the FHEQ.

203 There is a handbook for each programme cluster which provides students with a range of information about their programmes. Descriptors of the standard required for coursework assignments and projects are given for 10 per cent or 15 per cent bands over the 0 to 100 per cent marking range. Students whom the audit team met considered that they were provided with the necessary information about their

programmes as well as about College academic procedures. The students were also very satisfied with the information sent and available to them through the web prior to entry and with their contact with admissions staff.

204 The DSED opened its appraisal of learning resources by focusing on the calibre of the lecturing staff, referring both to College staff and to the significant number of external experts who contributed to the programmes. Laboratories were described as 'state-of-the art', with equipment-based and computer-based laboratories which have specialist software. The Department has its own library, which includes the Rees Jeffreys Transport Library, and is appreciated by students both for its learning resources and as a working environment. There are also programme-relevant books in the main College library. There are three computing laboratories with access for the MSc students from 0800 to 2230 hours, including weekends. Students actively participate in laboratories, design classes, interactive tutorials, discussion groups and field courses for which a range of supporting learning materials is supplied.

205 The Department has a postgraduate SSC, chaired by the Postgraduate Tutor, that considers postgraduate issues from across the Department. Each course has two or more representatives who can contact the course directors directly as necessary outside the SSC. The SSC receives written feedback on the results of module questionnaires. Students whom the audit team met confirmed that the SSC worked effectively, citing as a recent example the organisation, in response to feedback from students, of a workshop to help some students with their mathematics. Research students whom the team met were satisfied with the organisation of their activities, including encouragement to attend the training programmes organised by the GSEPS.

206 On the basis of documentary evidence and discussions with staff and students, the audit team concluded that the quality of learning opportunities within the School was appropriate for the programmes of study leading to the awards within the scope of the DAT.

Computing

207 The scope of the DAT was the BEng and MEng in Computing, lasting three and four years respectively. The MEng in Computing has possible pathways in Software Engineering, Computational Management, Artificial Intelligence and the European Programme of Study. The Department of Computing offers five other programmes: the BSc/MSc Joint Honours in Mathematics and Computing; and MSc programmes in Computing Science, Advanced Computing and Computing for Industry. The Department recruits between 110 to 120 students each year onto its BEng/MEng programmes, about 30 students a year onto its BSc/MSc programmes and about 120 students a year onto its MSc programmes. There are 50.5 full-time equivalent academic staff, 17 administrative and secretarial support staff, and 12 technical and computing support staff. The Department also has almost 200 researchers, roughly two thirds of whom are PhD students and the remainder research associates.

208 The DSED was written for the purposes of the audit and was comprehensive, covering aims, learning outcomes, curricula and assessment, quality of learning opportunities, maintenance of standards and quality assurance and enhancement. The Department provided programme specifications for the two programmes covered by the DAT. The aims for the programmes include reference to 'remaining among the leading institutions in the world for research and teaching', and 'to continue to attract the most able students world wide with a view to educating them in a way that fosters excellence, originality and depth of vision'.

209 The curricula of the computing programmes are broadly similar for the first three years, with the main difference being that towards the end of the third year MEng students commence a six-month industrial placement, whereas BEng students conclude their programme. MEng students submit an additional project background research report. During the fourth year, MEng students study a compulsory Software Engineering Environments unit and can choose among several other study

units drawn from the MSc in Advanced Computing programme. Students on both programmes can also take options from other non-technical subjects, such as finance, management and languages as part of their degree. Both programmes are accredited by the British Computer Society (BCS) and the Institution of Electrical Engineers (IEE), the most recent visits of which were in 2004.

210 The audit team noted that the programmes were clearly differentiated in terms of outcomes and skills acquired. The three-year BEng programme is explicitly levelled at level H (honours) and the MEng programme at level M, as is appropriate for an integrated undergraduate programme. The specifications for both programmes make explicit reference to the *Subject benchmark statements* for computing and for engineering and provide details of how such benchmarks were achieved and assessed. After perusing the information provided to it, the team confirmed that the Department had adequately distinguished the programmes through the use of appropriate level descriptors and learning outcomes.

211 Assessment strategies for both programmes are based on written examinations, assessed individual and group coursework, laboratory work, group projects, individual projects and, for MEng students, an industrial placement report and presentation. The overall assessment strategy for progression and award is described in the programme specifications. While departmental assessment procedures allow students to graduate with an MEng or BEng with a minimum mark of 30 per cent, students must pass group and individual projects at the first attempt with a minimum mark of 40 per cent to gain an accredited degree that permits exemption from the entrance examinations of the BCS and IEE. Details of the assessment strategy are provided in welcome packs to students at the start of the year as well as being made available on electronic notice-boards.

212 Two external examiners are appointed for the BEng and MEng programmes. External examiner reports seen by the audit team

consistently confirmed the high standards achieved by students as well as the satisfaction of subject benchmarks. Assessment methods also attracted favourable comment, in particular, the mix of examinations, practical exercises and project work. Project outcomes in particular were identified as often being of a very high standard. External examiners were satisfied with the way in which the Department had considered and responded to issues that they had raised. Overall, the team concluded that the Department was using appropriate assessment strategies for measuring the achievement of student outcomes. On the basis of external examiners' reports and the programme specifications, the team was able to confirm that the standard of student achievement was appropriate to the titles of the awards and their location within the FHEQ.

213 The Department underwent periodic review in December 2002 with four external assessors, including one from industry, each submitting individual reports to the College. The review was complimentary about the computing provision, with a number of particular strengths identified including curriculum design and content, industrial placements on the MEng, pastoral and tutorial support, and laboratory facilities and equipment. A small number of items were recommended for action, and these were addressed by the Department in its 12-month progress report in October 2004. The audit team concluded that the conduct of the periodic review provided evidence that the internal review system was effective, operating as intended locally, and could provide assurance to the College that standards were being maintained at the departmental level.

214 Departmental annual review procedures draw on feedback from SSCs, SOLE outcomes, and reports from course directors and external examiners. Information and data about student achievement and progression are provided by chairs of boards of examiners. Reports from year and subject coordinators, the senior tutor and other sources such as the departmental Academic Committee are compiled by the

departmental Director of Studies. A summary report is subsequently submitted to the Engineering Studies Committee.

215 Incoming students all have high grades at A-level, typically three As or equivalent, with an A grade in Mathematics being a requirement. The Department estimates that about half the intake each year has no programming experience. The most recent annual monitoring reports available to the audit team indicated that the percentage of students achieving First or Upper Second class honours degrees averaged 63 for the BEng and 89 for the MEng. Around 95 per cent of students who enter the programmes progress successfully to the final award, a success rate noted positively by the team.

216 Research students are required to attend an induction programme on registration and are provided with a comprehensive portfolio of information concerning supervisory and assessment arrangements. Generic and transferable skills training is provided through GSEPs and subject-specific training is provided through attendance on MSc modules and research seminar courses. Students must pass an examination to transfer from MPhil to PhD within 18 months of initial registration. The examination is conducted by at least two assessors other than the student's supervisor, and an audience, including other research students, may be present. Research students who undertake teaching in the Department are provided with training for their roles. The audit team saw much evidence that the Department monitored the progress of research students carefully and systematically from application to final submission. Research students whom the team met reported that they had strong and effective lines of communication with staff to register any concerns or issues.

217 MEng students are prepared for their placements through a comprehensive on-line guide that provides information on the administration and contact details as well as assessment information and guidance. Detailed handouts are provided for final-year projects. After reviewing the relevant information, the audit team confirmed that the Department's

approach to placement learning was consistent with the relevant section of the *Code of practice*.

218 The Department has a SSC that meets every term, attended by two elected student representatives from each year. Additionally, student representatives meet regularly as a group and have frequent contacts with their Year Coordinators. Students are able to raise any issue of concern to them, many of which are about minor timetabling and learning resource problems. Documentation seen by the audit team indicated that staff dealt with issues raised by the students effectively. In meetings with the team, students expressed satisfaction with responses and actions from staff.

219 At the start of their programmes, students are allocated a personal tutor whom they see once a week. After the first year, tutors and students are expected to meet twice a term. In meetings with the audit team, students expressed overall satisfaction with the personal tutoring arrangements.

220 During their first year students also meet in small groups of six, three times a week for academic tutoring based on regular assessed tutorial exercises in programming, discrete mathematics and mathematical methods. Students are assigned to groups to ensure that those with similar backgrounds are placed together. Students whom the audit team met commented favourably on the first-year tutorial system.

221 Students receive information on project preparation and presentation for the individual projects which are assessed by, typically, a team of four or five assessors. Additionally, all MEng final-year students are required to have their projects reviewed by a second marker roughly two-thirds of the way through the project. This feature allows potential problems in completing the project to be identified in time for remedial action as well as providing valuable independent input to the project. Students whom the audit team met commented favourably on the interim review mechanism but reported some variability in its application.

222 The Department has introduced novel

electronic methods for assessment and tracking student progress. First-year programming assignments are assessed using electronic submission and an auto-testing facility that generates scripts for each submission. The scripts, in the form of computer printouts are marked by tutors. Students whom the audit team met confirmed and praised the return of marked work within a few working days. In addition, the Department uses CATE (continuous assessment tracking engine), which is a secure web-based application that allows staff and students immediate access to the status of their submitted work. Staff can also access student records to confirm attendance and extensions of submission deadlines as well as register marks for student assignments. In meetings with the audit team, students provided confirmation and a practical demonstration of their use of CATE to monitor their own progress as well as plan their coursework schedule. The team formed the view that the use of technological tools such as automated testing and CATE to provide rapid feedback to students were examples of good practice that enhanced student support and the student learning experience.

223 The Department refurbished its laboratory facilities in 2004 and provides over 250 workstations, with one third renewed and another third upgraded each year. Students have access to the main College library as well as to the Department's Technical Library. All libraries have an associated electronic catalogue that is accessible via the internet.

224 Destination figures for graduates on the BEng and MEng programmes indicate that the majority of graduates, about 70 per cent, find employment in the IT and telecommunications industries and financial sectors, with the remainder finding employment in manufacturing or other business activities.

225 Departmental publicity is maintained and updated through support staff attending meetings and liaising with the Director of Studies so that changes to curricula are reflected on departmental web pages and other forms of hard copy. Students confirmed that

the information received prior to entry and during their progress on the programmes was accurate and up-to-date.

226 On the basis of documentary evidence and meetings with staff and students, the audit team confirmed that the quality of learning opportunities available to students was appropriate for programmes of study leading to the awards of BEng and MEng in Computing.

Physics

227 The DAT covered the following programmes offered by the Department of Physics in the Faculty of Physical Sciences:

- BSc Physics
- BSc Physics with Theoretical Physics
- BSc Physics with Studies in Musical Performance
- MSc Physics
- MSc Physics with Theoretical Physics
- MSc Physics with a Year in Europe.

The programmes are accredited by the Institute of Physics (IoP).

228 The DSED was prepared for the purposes of the audit and was based on documentation from a recent internal review. It included programme specifications for each programme, the *Subject benchmark statement* for physics, astronomy and astrophysics, and two informative diagrams. The first diagram set out the prerequisites for courses in years three and four, the other showed the sequence of topics by year and whether they were compulsory, recommended or optional, and mapped them to the 'Core of Physics' as defined by the IoP. The DSED was accompanied by a useful document, produced by elected student representatives, providing a commentary on the provision arising from discussions in the SSC.

229 All of the programmes have been revised since the QAA subject review in November 1999 and provide an initial grounding in the core of the subject followed by a range of topic choices, especially in the MSc programmes. All the programmes include substantial development of 'professional skills' and provide opportunities for

students to study courses in humanities or languages as part of the curriculum.

230 The programme specifications provide a clear indication of the nature of the programmes year-by-year and of the learning outcomes, which correspond appropriately to the criteria in the FHEQ. Reference is made to the *Subject benchmark statement* and to the IoP '*Graduate Skills Base and Core of Physics*' documents. Students whom the audit team met confirmed that they were well informed about their programmes of study but did not use the programme specifications for guidance in this area.

231 Although the programme in Physics with Studies in Musical Performance extends over four years and involves coverage of the same number of course units as an MSc, as all final units are at level H, not level M, it leads to the award of a BSc. The audit team noted that while the four course units followed each year constituted the standard number, the inevitable complications of timetabling to accommodate musical rehearsals and performances made this programme particularly demanding. The numbers enrolled on the programme are small but the team saw a range of evidence to indicate that graduates were successful in their chosen careers and that both they and current students were appreciative of the opportunities offered by the combined curriculum.

232 The DSED included limited data that nevertheless demonstrated that the quality of the intake was excellent and progression rates were very good. Detailed data on student progression and achievement are included in the annual monitoring reports submitted to the Science Studies Committee.

233 With the exception of the BSc in Physics with Studies in Musical Performance, the recommended initial registration for all programmes is for the award of MSc. Some students subsequently elect to transfer to a three-year BSc programme and some are required to transfer out of the MSc programmes because their accumulated performance at the end of the second year is clearly below Upper Second class honours level.

The programme specifications state that students with aggregate marks in the range 57 to 60 per cent are considered on an individual basis for progression on the MSc.

234 At the time of the audit, the Department had recently undergone quinquennial internal review. In accordance with standard College practice, the review involved four external peers, including one from a comparable institution in continental Europe. The external reviewers were positive about the design and content of the programmes, the appropriateness of the educational objectives and the achievements of the students. The audit team noted the Department's response to the review and the QARC consideration of the review report and confirmed that all matters raised in the report had been addressed satisfactorily. Staff whom the team met confirmed that departments were expected to respond to review recommendations to allow the review to be signed off within twelve months.

235 The audit team noted the positive comments from the periodic review panel on the opportunities offered by the MSc Physics with a Year in Europe, which were reinforced by students whom the team met. Arrangements for the year abroad are managed by the departmental Year Abroad Coordinator who maintains email contact with the students while they are away. The team saw evidence of the comprehensive information supplied to students prior to the year abroad and of the assistance provided in acquiring the requisite language skills. Departmental staff visit students on two occasions during the period abroad; the team also heard that some students had received visits from staff from the Languages Unit. The team considered the approach to preparation of, and support for, students undertaking a year of study abroad to be a feature of good practice.

236 In accordance with normal College practice, the Department submitted an Annual Monitoring Report for the academic year 2003-04 to the Science Studies Committee. The minutes of the Science Studies Committee record receipt of the report but no detailed

evaluative discussion of its content.

237 The audit team viewed a selection of external examiner reports which were very positive overall. The team noted points raised in connection with equitable recognition in the assessment scheme of academic work undertaken in a number of different institutions during the year in Europe. A comprehensive response from the Head of Department to the examiners set out detailed and systematic mark translation protocols to be applied to the results of assessment undertaken abroad.

238 The Department's programmes are accredited by the IoP. The audit team saw the most recent IoP report of an accreditation visit in November 2003 and the Department's response which covered all the matters raised. The Head of Department and the DUGS considered the report and compiled a response on behalf of the Teaching Committee for submission to the Science Studies Committee.

239 The performance of students is assessed in a variety of ways including written examinations, laboratory and computing reports, project reports, and presentations. The audit team considered the inclusion in the final assessment of two 'comprehensive' papers which test students across the subject to be a noteworthy feature. Students whom the team met appreciated the overall view of the subject that was developed in preparing for these papers. Clear information about the weighting of components within each year and of the weighting of successive years in the final degree classification is provided in the Student Handbook and the programme specifications. The team noted the variety of Pass marks recorded in the programme specifications. The team confirmed that the approach to assessment was in line with the relevant sections of the *Code of practice*.

240 The audit team reviewed samples of student work from across the provision. External examiner reports seen by the team confirmed that the best performances in project work, including some from the Year in Europe, were of a very high standard. The team was

able to confirm that the standard of student achievement was appropriate to the titles of the awards and their location within the FHEQ.

241 The Student Handbook was helpful and informative and included an appropriate level of detail. While it is designed for student use, staff whom the audit team met reported that they also found it very useful. In addition, much information, including course materials, is available on the departmental website which is highly regarded by the students.

242 The audit team noted that there was pressure on space in the Department. The removal of the Department's library holdings to the central library, in accordance with College policy, had caused some initial disturbance to staff and students but, in meetings with staff and students, the team heard that the change was becoming accepted. Reallocation of the space released by the move allowed provision for student study space although the students considered that some of it was not entirely fit for purpose. Computing facilities include 100 PCs replaced on a four-year cycle and generally meet requirements, although demand is high close to deadlines for submission of reports. The undergraduate laboratories are well equipped, there having been substantial spending on new equipment in 2004; a major refurbishment programme for the third year laboratory was scheduled for summer 2005.

243 Oversight of all aspects of undergraduate teaching, including resources, is maintained by the DUGS who chairs the Teaching Committee and is a member of the 'Heads of Groups' meeting, the senior committee within the Department. The Department has a well-established practice of appointing at least one Lecture Course Associate to assist the lecturer in each course. In meetings with staff, the audit team heard that the appointments might match a new member of staff as associate with an experienced lecturer or vice versa. The team noted instances recorded in the minutes of the Teaching Committee of the use of Associates to respond when a course generated appreciable student dissatisfaction.

244 The Department makes use of a range of methods for obtaining student feedback. SOLE is augmented locally by paper-based questionnaires covering topics not yet included in SOLE, for example, laboratory classes. There is an active SSC, chaired by the Senior Tutor with five other members of the academic staff and 12 elected student representatives. There is one postgraduate student representative on the Teaching Committee. The audit team saw minutes of the Teaching Committee agreeing actions resulting from matters both referred to it by the SSC and emerging from SOLE. In meetings with the team, students confirmed the effective operation of formal and informal routes for feedback in the Department. The team concluded, from discussion with staff and students and the review of the minutes of the SSC and the Teaching Committee seen by the team, the students were actively and constructively involved in quality management in the Department.

245 From documentary evidence and discussion with staff and students, the audit team confirmed that the quality of learning opportunities was suitable for programmes of study leading to the named awards.

Thematic enquiries

246 The audit team did not select any areas for thematic enquiry.

Section 4: The audit investigations: published information

The students' experience of published information and other information available to them

247 Published information available for the audit included the College's prospectuses and information on the website. In the course of the DATs, the audit team reviewed a range of student handbooks. Students whom the team met reported that the information available to them in prospectuses and on the College website prior to application had for the most

part been useful and was an accurate representation of the College and its academic provision. In particular, international students commented favourably on the information available on College and departmental websites.

248 Students also confirmed to the audit team that the information that they received once they were enrolled on programmes was accurate and reliable. Typically, such information included student handbooks, details of module content and delivery, and information on options. In the process of reviewing the broad range of material made available for the DATs, the audit team was able to consider the content of programme and module specifications which, with exceptions noted above, while variable in terms of presentation and content particularly in the specification of learning outcomes, were in the main comprehensive, relevant and up-to-date. Information about assessment included assessment criteria and the nature and balance of module assessments. Research students whom the team met were generally satisfied with the information provided to them, and students on taught postgraduate programmes were particularly satisfied that their expectations had been met.

249 The College has a number of procedures for monitoring information published in its name. For instance, prospectus information about course content and structure is produced or updated by departments and submitted for publication by a nominated person. Such information is then checked by the Publications Office within the Communications Division prior to publication. The Division also checks the accuracy of more general information describing College facilities and details of student accommodation.

250 With regard to web-based information, there is central responsibility only for the main College website and Spectrum, the College's intranet, through the Publications Office. A review group of the Web Management Board has made progress in coordinating web page formats and styles to convey an institutional house style in terms of design and security.

While the College did not claim that all departments were using the corporate style, after perusing the web pages of several departments, the audit team can confirm a high level of consistency in the way that departments present information on programmes on the web.

251 As noted, see paragraph 183 in the course of the DAT in Bioengineering, the audit team found an instance of misleading information about a progression route to the College's integrated medical curriculum. During discussions with senior management staff, it was made clear to the team that the College Prospectus for 2006 had been edited to remove the reference to possible accelerated entry but the team noted that the departmental website had not been amended. To avoid a recurrence of such provision of inaccurate information, the team considers that it would be desirable for the College to review its approach to checking the accuracy of material for the public domain produced by departments.

Reliability, accuracy and completeness of published information

252 In due course, the institutional audit process will include a check on the reliability of the teaching quality information (TQI) set published by institutions in the format recommended in HEFCE's documents 02/15 and 03/51. The SED claimed that the College had met all deadlines for publishing information. External examiners' review forms for undergraduate and postgraduate programmes had been revised to include a statement for publication in line with the template in HEFCE 03/51. The audit team confirmed that the summary external examiner reports were on the TQI website for undergraduate programmes, with statements for postgraduate taught programmes to follow. The team examined a number of documents and visited the TQI site to confirm the College's progress in addressing the recommendations of HEFCE 03/51. The College has identified that further work is required in the area of student satisfaction, as required by HEFCE 02/15.

253 With regard to information that should be

available within the College, the audit team was presented with evidence throughout the visit of institutional context, information on admission, progression and completion, details of internal procedures for assuring quality and standards, programme specifications, and internal review procedures and outcomes. The team also saw evidence of how such information informed internal quality assurance processes, by way of example, discussion at Senate of the distribution of Honours Degree Classifications for the academic year 2002-03 and undergraduate examination failure rates for the academic year 2003-04. The team was provided with the results of the latest SOLE exercise conducted in the academic year 2004-05 that covered student satisfaction with their College experience.

254 Overall, the audit team concluded that the College was alert to the requirements of documents HEFCE 02/15 and 03/51 in relation to information on quality and standards in higher education and was moving in an appropriate manner to fulfil its responsibilities in this respect.

Findings

Findings

255 An institutional audit of Imperial College of Science, Technology and Medicine (known as Imperial College London) (the College) was undertaken during the week 6 to 10 June 2005. The purpose of the audit was to provide public information on the quality of the College's programmes of study and on the discharge of its responsibilities as a constituent part of the University of London. As part of the audit process, according to protocols agreed with the Higher Education Funding Council for England (HEFCE), the Standing Conference of Principals and Universities UK, four discipline audit trails (DATs) were selected for scrutiny. This section of the report of the audit summarises the findings of the audit. It concludes by identifying features of good practice that emerged from the audit and recommendations to the College for enhancing current practice.

The College and its Mission

256 The College, established in 1907 by Royal Charter, is an independent institution within the University of London; it operates on a number of campuses including the Wye Campus near Ashford in Kent. The College awards undergraduate and postgraduate taught degrees of the University of London. Within the general framework for quality and standards of the University, the College has independent responsibility for determining the curricula, methods of assessment and regulations for the award of degrees. The College operates within the University of London regulations in respect of research degrees. The College was granted taught degree-awarding powers in 2003 but has decided not to exercise these powers for the time being.

257 The College consists of four faculties: Engineering; Life Sciences; Medicine; Physical Sciences; and the Tanaka Business School. The SED indicated that the Faculty of Life Sciences was 'in a transitional phase until August 2005'. By the time of the audit, the decision had been made to restructure the Faculty, entailing the withdrawal of much of the natural sciences teaching and research activity from the Wye

Campus over a three-year period.

258 A Humanities programme offers all undergraduate students the opportunity to study a humanities subject as part of their main programmes of study and had just over 1,900 students enrolled in the academic year 2003-04. There are two Graduate Schools: Engineering and Physical Science (GSEPS) and Life Sciences and Medicine (GSLSM). For the purposes of this report and ease of reference, the term 'department' is used to include divisions, schools and the Centre for History of Science, Technology and Medicine, unless otherwise indicated in the text.

259 The College's Mission statement is 'Imperial College London embodies and delivers world class scholarship, education and research in science, engineering and medicine with particular regard to their application in industry, commerce and healthcare. We foster interdisciplinary working internally and collaborate widely externally'.

The effectiveness of institutional procedures for assuring the quality of programmes

260 The self-evaluation document (SED) described in some detail the College framework for assuring the quality of its programmes. The Senate, chaired by the Rector, is the principal academic policy making body of the College and carries ultimate responsibility for the quality and standards of the College's provision. In assimilating recommendations from the bodies that report to it, the Senate ensures the coherence of the regulatory framework. The Quality and Academic Review Committee (QARC), supported by the advisory Quality Assurance Advisory Committee (QAAC), reports to the Senate and has an overriding responsibility for promoting excellence in undergraduate and postgraduate education. The recently established Strategic Education Committee (SEC) is concerned with purely strategic matters such as developments in the College's overall educational profile. There are studies committees for each of the faculties which report to the Senate and oversee quality

and standards in their relative disciplines at undergraduate level. The quality and standards of postgraduate programmes, both taught and research, are overseen by two Graduate Schools, one for Engineering and Physical Sciences and one for Life and Medical Sciences, each of which in turn has a Postgraduate Quality Committee.

261 At faculty level, teaching committees have individual terms of reference but all engage in a series of quality related matters. Care has been taken to define the distinctive roles of these in relation to the studies committees, although in the Faculty of Medicine these roles have been merged. The studies committees are chaired by deans who are elected and have no executive powers but play a representative role at institutional level. The quality and standards of undergraduate courses and programmes provided by the Tanaka Business School and in the Humanities are managed through the studies committees. Notwithstanding the complexity of the arrangements, the audit team was satisfied that the framework for the management of quality assurance was sound.

Key features of the procedures for programme approval, monitoring and review

262 Programme approval for undergraduate provision proceeds through two stages. The initial stage is scrutiny of the proposal by the relevant studies committee and, since 2004, has involved external assessment. The second stage takes place during the second or third year of the operation of the new programme, is said by the College to be 'more detailed and rigorous' and also involves external assessors. While appreciating that the approach has certain merits, in the view of the audit team the interval between the two stages of approval has the potential to cause difficulties should stage two approval not be forthcoming, and it was not clear whether stage two approval was, in practice, automatic because students were already enrolled on the programme. While the team was assured that in the event of stage two approval being withheld, the College would ensure that all students registered on the course would be supported to complete their

studies, the team considers that this commitment should be made explicit in the formally documented procedures.

263 Annual monitoring is conducted within departments and divisions with the outcomes reported to the appropriate studies committee. The audit team accepted the College's view that annual monitoring should not 'create another layer of review', but noted effective evaluation in several of the monitoring reports and considered that there was scope for extending this good practice across the College.

264 Periodic review of undergraduate programmes is conducted on a quinquennial basis and follows a suggested College template. The review is designed to cover all facets of a department's undergraduate teaching programmes. Of particular note is the high level of externality deployed to conduct the review: four assessors are appointed including, apart from in the Faculty of Medicine, an industrialist and a European academic. Postgraduate taught programmes are reviewed biennially by the Postgraduate Quality Committees of the relevant Graduate School. From its reading of documentation and discussion with staff, the audit team concluded that the approval process for taught postgraduate provision was also fit for purpose and operating as intended.

Key features of the procedures for securing feedback on the quality of programmes from students and other stakeholders

265 The most important college-wide mechanism for securing formal feedback on their programmes from undergraduates is Student On-line Evaluation (SOLE), introduced in the academic year 2002-03. The College is securing response rates in SOLE that provide meaningful information at departmental and institutional levels. The audit team considers SOLE to be an effective process with the potential to contribute to quality assurance and enhancement. At the time of the audit, the College had recently introduced a similar process for research students (ROLE) that was also providing useful information of research students' experience at the College. QARC is

responsible for the operation of SOLE and ROLE. The team noted plans for evaluation of undergraduate student support services (SWOLE) and of project and other non-lecture aspects of undergraduate teaching (PROLE) and the planned introduction of a parallel scheme for master's-level students (MOLE). It is intended that all these evaluation mechanisms be in place by the academic year 2007-08. Until MOLE becomes operational, feedback on taught postgraduate programmes will continue to be obtained through conventional questionnaires and then reported to the relevant graduate school management committee.

266 All departments have staff-student committees (SSCs) that provide effective arenas for discussion of matters raised by students. Panels conducting internal periodic reviews meet students and gather direct feedback on the operation of programmes of study. Further feedback is collected by the College through surveys of central services including the Registry, the library, Residences, the student counsellors and the Careers Service.

267 Feedback from graduates is not currently sought at institutional level as priority has been given to developing and improving methods of securing feedback from current students. The audit team would encourage the College to consider how it might systematically collect feedback from its graduates to inform development of its provision. The views of employers are primarily gained at departmental level, partly through research links and student placements. Feedback from employers is also obtained by many departments through formally constituted Industrial Advisory Boards. Most departments maintain contact with their own graduates and acquire useful informal feedback from them about the relevance of their programmes of study to their employment.

Key features of procedures for assuring the quality of distance-learning programmes and collaborative programmes

268 The College offers a range of postgraduate programmes delivered by distance-learning activities through the University of London External System. The majority of the

programmes are supported by Distance-Learning Programme (DLPs) support staff based at the Wye Campus. Quality assurance of the DLPs is shared between the College and the University of London; a Quality Assurance Schedule defines the division of responsibilities. Within the College all such programmes are monitored by the Distance Learning Programme Policy Committee (DLPPC). Quality assurance procedures for DLPs and elements are identical to those for College-based postgraduate provision. Assurance of standards is secured through the involvement of external examiners and standard reporting structures to graduate schools committees. The development of new distance-learning modules involves an initial review by a peer group, production of detailed module outlines and preparation of the necessary materials. The DLPPC is moving progressively towards electronic delivery of all new course modules to assist with review and updating of study materials. The College has experienced difficulties in gathering feedback from students on distance learning courses. At the time of the audit, the DLPPC was seeking to improve monitoring and evaluation of the distance-learning provision through on-line methods.

269 At the time of the audit, the College had only two collaborative arrangements in taught provision. It is not part of the College's educational strategy to develop other collaborative arrangements except where 'opportunities might seem advantageous to the College'. Collaborative programmes are subject to the same quality assurance and monitoring processes as College-based programmes. The audit team noted that not all of the written agreements governing the collaborative arrangements had been updated in line with the *Code of practice for the assurance of academic quality and standards in higher education (Code of practice), Section 2: Collaborative provision and flexible and distributed learning (including e-learning)*, published by QAA.

270 In the SED, the College expressed confidence in its mechanisms for assuring the quality of programmes. The SED identified that the challenge for the College in terms of quality

assurance was to enable departments and faculties to achieve their aims as they saw best, within a strong but flexible framework of College expectations for the delivery of programmes, monitored by a robust system of checks and balances at institutional level.

271 The audit team found the system for quality assurance through periodic review of undergraduate programmes to be robust, noting in particular the use of a broad range of external peers, including industrialists and academic staff from institutions in Europe as a feature of good practice. The team considered that in developing its approach to annual monitoring, the College should draw on existing good practice in departments to achieve consistency in the extent of the analysis and areas covered in the reports from departments; a more evaluative approach to consideration of the reports within studies committees would also contribute to the College's processes for the quality assurance and enhancement of its provision. The team also considers it desirable that the College review its approach to approval of undergraduate programmes to confirm the purpose, scope and scheduling of each of the two stages.

272 From the evidence available to it and discussion with staff and students, the audit team formed the judgement that broad confidence could be placed in the soundness of the College's current and future management of the quality of its academic programmes.

The effectiveness of institutional procedures for securing the standards of awards

Key features of the College's approach to securing the standards of its awards, including the use of statistical data, the management of assessment processes, and the role of external examiners

273 The College's approach to securing the standards of awards is to locate responsibility primarily at the level of the discipline, with appropriate checks and balances at the institutional level. The overall approach mirrors that for quality assurance so that, while QARC exercises an overview across the College, the

management of standards is effected at departmental level. The 'standards framework' has a number of elements: the range of methods of assessment specified; approval by studies committees of schemes for award of honours; the approval and marking of examination questions and scripts; the utilisation of common mark bands for the award of degrees across the College; policies on resits, and provisions for the award of Pass and aegrotat degrees. The main means of monitoring the reliability and validity of examination procedures is through the external examiner system.

274 External examiners are used at the programme level to ensure that the standards of awards are consistent with national norms and to confirm that assessment was fair and robust. External examiners are also invited to comment on the curriculum, methods and adequacy of teaching, and the appropriateness of the standards set and attained in relation to subject benchmarks and *The framework for higher education qualifications in England, Wales and Northern Ireland* (FHEQ). External examiners' reports are positive about the high standards achieved on taught programmes. The audit team noted variability in Pass/Fail boundaries for both undergraduate and postgraduate taught programmes and that the College was undertaking a review of its requirements in this area.

275 The College offers a number of integrated undergraduate master's programmes that are taught in parallel with cognate honours level (H) programmes. The final stages of the integrated undergraduate master's programmes draw on M-level material from postgraduate master's programmes as well as material taken from the final year of honours programmes in the same discipline. External examiners comment favourably on the high standards achieved by students on the integrated programmes, and the audit team found evidence in the DATs to confirm that the outcomes were at M-level for such extended programmes. The team concluded that these integrated undergraduate master's programmes

were appropriately located within the FHEQ in terms of outcomes.

276 Programme specifications for such programmes and for their H-level counterparts did not always clearly indicate which elements were at M-level and which elements were at H-level. In one programme, it appeared that significant amounts of M-level material were introduced at H-3 level, leading to potential problems with regard to intellectual progression and curriculum balance. In the view of the audit team, a uniform approach to the designation of the level of course elements would provide additional clarity in the definition of programme structures. The team therefore considers it desirable that the College establish a systematic and consistent approach to the coding of course elements to designate clearly levels of study. The College accepts that more work needs to be done with regard to making the relationship between programme outcomes and the FHEQ more explicit, and is currently reviewing its programme approval and review procedures with this in mind.

277 The College and its departments use data in a range of ways for assuring the standards of its awards, including an annual report from Registry to Senate on undergraduate progression and completion rates at institutional level. Senate has also received reports on the distribution of honours degree classification by department as well as research degree submission rates. Departments provide an analysis of student progression in their annual monitoring reports to the studies committees. Additionally, a detailed statistical report on failure rates for each year on each undergraduate programme informs the studies committees about student repeats, transfers and withdrawals.

278 The SED expressed the College's confidence that it 'set and consistently achieve[d] high standards in the learning and teaching delivered to [its] students and in the awards that they obtain[ed]'. The SED pointed to the College's aim to 'ensure consistency of academic standards within and across its differing degree structures through the

application of common conventions and programme approval procedures'. The SED recorded concerns about practices in respect of undergraduate degree progression rates and the need to regularise marking schemes for postgraduate taught programmes.

279 The audit team was able to confirm that the SED was an accurate depiction of the College's approach to securing the standards of its awards. Effective use is made of progression and completion data at central and local level in the assurance of academic standards. The team considered that variability in Pass/Fail boundaries could lead to inconsistencies in the way that standards at the threshold level were set for different disciplines for both undergraduate and postgraduate taught programmes. The team would therefore advise the College to extend its current survey and review of variability in Pass/Fail boundaries at postgraduate level to cover the whole of its provision to establish a common set of Pass marks to be applied to existing programmes so as to achieve early convergence of requirements and consistency of approach and to demonstrate equity of treatment of students across the schools and faculties.

280 The audit team confirmed that the College's policies and procedures for its external examining arrangements were in alignment with the relevant section of the *Code of practice*. The team concluded that the use of external examiners was strong and scrupulous and supported a judgement of broad confidence in the College's current and future management of the standards of its awards.

The effectiveness of institutional procedures for supporting learning

281 The College has strategies for supporting student learning which relate to teaching staff and their development, the provision of learning resources and to the academic and welfare support provided to students. The College stated that one of its strategies is to recruit high-quality staff with an active interest in teaching as well as have visiting experts contributing to teaching. The Centre for

Educational Development (CED) offers a range of activities to develop teaching and learning skills for new and established lecturers and others engaged in teaching. In particular, it runs the Certificate of Advanced Study in Learning and Teaching and the Support Learning and Teaching Programme programme as well as workshops on a range of topics. The CED also manages the Teaching Development and Research Grant Schemes, awarded annually to enhance teaching and curriculum design. The Staff Development Unit provides professional development training. Departments have the responsibility to train their graduate teaching assistants. The Registry annually distributes a summary of good teaching practice distilled from the reviews of undergraduate teaching and CED has similar information on its website.

282 The College has replaced appraisal by a system of Personal Review and Development Planning (PRDP). Consideration of contributions to teaching is a major feature not only of the PRDP process but also in academic promotion.

283 The principal learning resources for students are the libraries, the IT infrastructure, the laboratories and teaching and learning space. There are libraries on all campuses with departmental libraries on the main campus progressively being consolidated into the central library. In addition to written and virtual reference material, all libraries have PC clusters and study spaces and some have group study spaces. Faculty Support Services library staff teach students how to find and manage information.

284 All the College's computers are part of the IT infrastructure which is maintained by the Information and Communication Technologies Division. The Division also provides support to students who bring their own laptops or PCs onto campus. The College has an e-learning strategy based on the use of a virtual learning environment (VLE) which contributes to the Learning and Teaching Strategy for integrating information and communication technology into undergraduate and postgraduate learning and teaching both on and off-campus. The College funds a number of e-learning

technologist posts to support the development of e-learning. The College has a policy of unrestricted access to its web pages.

285 The College provides a range of academic and personal support for students. Significant efforts are made in induction to support students in becoming accustomed to life at the College, starting with the 'Welcome Week'. In departments, undergraduate students have personal tutors, a senior tutor and also senior students acting as 'buddies'. At institutional level, there are College tutors and proactive warden teams that provide support in halls of residence. Remedial support is available for students experiencing academic difficulties. A full range of medical, careers and similar support services is provided. Postgraduate taught and research students receive effective support with the graduate schools and departments providing training specifically to help them with the studies and research.

286 The SED described how the College was progressively enhancing its provision for learning support including the library and IT provision; academic and personal support; and staff development. The SED demonstrated how improvements in this area drew on well-established principles and systems. The SED did not offer explicit evaluative comment on the current system.

287 The audit team concurred with the view expressed by students that the provision of computing and library facilities was excellent. Academic and personal support provided by tutors and academic and support staff are fit for purpose and operating as intended. Teaching staff are recruited, developed and supported to help students to learn effectively. From documentary evidence and meetings with staff and students, the team confirmed that the SED provided an accurate account of approaches to supporting learning. The team concluded that the learning environment provided to students through the learning resources and teaching staff, together with the academic, pastoral and welfare support available, was effective in supporting students in their learning.

Outcomes of discipline audit trails

Biomedical engineering

288 The scope of the DAT was the BEng/MEng in Biomedical Engineering. At the time of the audit no students had yet graduated from the programmes which were introduced in the academic year 2002-03. Programme specifications were provided for each of the awards and were referenced to the *Subject benchmark statement* for engineering but there was a lack of clarity in identifying the level at which individual modules were located within the FHEQ. The programme specifications were also not clear in differentiating between the BEng and MEng programmes. The audit team noted the good relationships between staff and students in the Department and saw evidence of action taken in response to matters raised by the students. In general, the quality of learning opportunities is satisfactory, although there are some resource constraints. The team did not view assessed work from year three of the programmes as, at the time of the audit, it had not been considered by external examiners or assessment boards. From external examiners reports and the relevant sections of the programme specifications, the team concluded that the standard of student achievement for the first two years of the programme was appropriate to the titles of the awards and their location within the FHEQ.

Civil and environmental engineering

289 The DAT encompassed all of the MSc programmes in the Department of Civil and Environmental Engineering. Programme specifications were provided for all the programmes. The audit team noted that some programme specifications did not distinguish the particular features of the programmes, and there were anomalies in the assessment information in the programmes specifications, within specifications and between programmes. Students' views are gathered through module questionnaires and through SSCs. The team confirmed that the standard of student achievement was appropriate to the titles of the awards and their location in the FHEQ. The team also concluded that the quality of learning

opportunities in the School was suitable for the programmes of study.

Computing

290 The scope of the DAT was the BEng and MEng in Computing, lasting three and four years respectively. The programme specifications for the programmes are referenced to the appropriate subject benchmark statements. The student evaluations were positive in their support for the programmes as reflected in the SOLE questionnaires and SSC activity committees. The use of technology for the automated testing of computer programmes and CATE (continuous assessment tracking engine) is an example of good practice that deserves wider dissemination both within the institution and more generally. The audit team confirmed that the standard of student achievement in the programmes was appropriate to the title of the awards and their location in the FHEQ. In general student support was effective and the team considered that the quality of the learning opportunities available to students was suitable for programmes of study leading to the awards.

Physics

291 The DAT covered the following programmes offered by the Department of Physics in the Faculty of Physical Sciences:

BSc Physics; BSc Physics with Theoretical Physics; BSc Physics with Studies in Musical Performance; MSc Physics; MSc Physics with Theoretical Physics; and MSc Physics with a Year in Europe.

292 Programme specifications were provided for all of the programmes. Good relationships between students and staff are exemplified by the attention paid by the SSC to the results of student evaluations and by the thoroughness with which students working abroad on the 'Year in Europe' programme are supported and monitored. The audit team concluded that the standard of student achievement was appropriate to the titles of the awards and their location within the FHEQ. The team confirmed that the quality of the learning opportunities available to students was suitable for programmes of study leading to the awards.

The use made by the institution of the Academic Infrastructure

293 The SED stated that, as each section of the *Code of practice* was published, it was scrutinised by an appropriate working group to review and, where appropriate, to modify current practices: the College would therefore ensure that it took account of the precepts in the *Code* while recognising that they were not prescriptive. In some instances, little action was required; in others significant improvements were implemented. The audit team confirmed that the *Code* had been subject to rigorous scrutiny and that appropriate adjustments had been enacted, noting that there was some work to be done in relation to agreements covering the operation of collaborative arrangements.

294 In the SED, the College recorded that it had not systematically reviewed its existing programmes 'to position them against the FHEQ' but went on to say that 'it [was] satisfied that its undergraduate and taught postgraduate awards [were] consistent with H and M levels'. The audit team confirmed that in most cases programmes were appropriately located in relation to the FHEQ but, as noted, there was evidence from one of the DATs of a lack of clarity in the relationship of the programmes to the FHEQ. The team would therefore advise the College, in the context of the FHEQ, to review its approach to programme structures to provide assurance of organised academic progression through the curriculum, with particular reference to the balance and scheduling of the H and M level course elements in years three and four of the undergraduate programmes.

295 Programme specifications are produced to an institutional template. Programme specifications for undergraduate programmes are approved by the studies committees and those for taught postgraduate programmes are approved by the graduate schools. Programme specifications for all courses must be lodged on the College website by the end of the academic year 2004-05. The audit team's reading of a number of programme specifications indicated that there was variability in their comprehensiveness and content. The team

therefore considers it desirable for the College, in refining its approach to the formulation of programme specifications, to identify and draw on existing good practice within its provision, with particular attention to the specification of intended learning outcomes.

The utility of the SED as an illustration of the institution's capacity to reflect upon its own strengths and limitations, and to act on these to enhance quality and standards

296 The audit team found the SED helpful in its description of the College's arrangements for securing the quality and standards of its awards. The SED set out key elements of the College's mission, its vision, plans and strategies and its quality and standards framework. A series of annexes gave further details of the committee structure and the terms of reference of its key committees. The SED was analytical in the sense that it identified areas where work needed to be done.

Commentary on the institution's intentions for the enhancement of quality and standards

297 The SED devoted a sizeable section to the College's approach to enhancement. The audit process confirmed that there were many examples of good practice and also the means for disseminating them. The audit team noted in particular the variety of approaches being taken to increase awareness of science and engineering in schools through such initiatives as the Innovative Scheme for Post-docs in Research and Education (INSPIRE) and the link that was being developed between Thames Valley University and the College in widening participation in admissions to the Faculty of Medicine, both of which the team considered to be a feature of good practice. The team noted the extension of SOLE to research students (ROLE) and the planned extension to taught master's students (MOLE). The audit team considered the effectiveness of SOLE which has the potential to contribute to quality

assurance and enhancement to be a noteworthy feature. The team noted, in particular, the engagement of students with the process and the use of results in PRDP. The increased status awarded to academic staff who had concentrated on teaching and student support and welfare was also noted with approval by the team, as were the intentions to increase the role of e-learning. At the time of the audit the setting up of the SEC was too recent for the team to offer a view on its effectiveness, but it points to the seriousness with which educational policy is regarded at senior levels within the College.

298 From its discussion with staff and students, and its scrutiny of internal committee policy documents, the audit team concluded that the College has a strong commitment to enhancing the quality of the student's learning experience and that its intentions in that area were both appropriate and timely.

Reliability of information

299 The audit team was provided with a full range of published information that related both to College and departmental levels. The team confirmed that the College system for ensuring the accuracy of centrally published material on paper and on the web included clear responsibility for inputs and the detailed checking of material. There was a high degree of satisfaction that these internal processes worked effectively for central information.

300 In discussion with students in departments, the audit team confirmed that the publicly available information in print and on the web was generally informative and reliable. The information that students received once they were enrolled on programmes was reported to be accurate, reliable and timely overall. The team noted an instance of inaccurate publicity about a programme in one of the DATs and, to avoid a recurrence of such provision of inaccurate information, considers that it would be desirable for the College to review its approach to checking the accuracy of material for the public domain produced by departments.

301 The audit team concluded that the College was alert to the requirements of HEFCE's document 02/15 *Information on quality and standards in higher education* and its successor 03/51, *Final guidance* in relation to information on quality and standards in higher education and was moving in an appropriate manner to fulfil its responsibilities in this respect.

Features of good practice

302 The following features of good practice were noted:

- i the use of a broad range of external peers, including industrialists and academic staff from institutions in Europe, in periodic review of undergraduate programmes (paragraph 67)
- ii the effectiveness of SOLE which has the potential to contribute to quality assurance and enhancement. The audit team noted, in particular, the engagement of students with the process and the use of results in the Personal Review and Development Planning and promotion processes (paragraphs 96, 103, and 112)
- iii the recognition accorded to teaching, especially in the promotions exercise (paragraphs 114 and 117)
- iv the College's approach to outreach activity, exemplified by the INSPIRE project and the collaboration with Thames Valley University (paragraphs 149 and 151)
- v the effective use of automated testing and CATE to provide rapid feedback to students in the Department of Computing (paragraph 222)
- vi the approach to preparation of, and support for, students in the Department of Physics undertaking a year of study abroad (paragraph 235).

Recommendations for action

303 Recommendations for action that is advisable:

- i extend its current survey and review of variability in Pass/Fail boundaries at postgraduate level to cover the whole of its provision to establish a common set of Pass marks to be applied to existing programmes so as to achieve early convergence of requirements and consistency of approach, and to demonstrate equity of treatment of students across the schools and faculties (paragraphs 49 and 50)
- ii in the context of the FHEQ, review the approach to programme structures to provide assurance of organised academic progression through the curriculum, with particular reference to the balance and scheduling of the H and M-level course elements in years three and four of undergraduate programmes (paragraphs 79 and 177).

304 Recommendations for action that is desirable:

- iii review its approach to approval of undergraduate programmes to confirm the purpose, scope and scheduling of each of the two stages (paragraph 57)
- iv in developing its approach to annual monitoring, draw on existing good practice in departments to achieve consistency in the extent of the analysis and areas covered in the reports from departments; a more evaluative approach to consideration of the reports within studies committees would also contribute to the College's processes for the quality assurance and enhancement of its provision (paragraph 61)
- v in refining its approach to the formulation of programme specifications, identify and draw on existing good practice within its provision, with particular attention to the specification of intended learning outcomes (paragraph 78)

- vi establish a systematic and consistent approach across the College to the coding of course elements to designate levels of study (paragraph 78)
- vii review the approach to checking the accuracy of material for the public domain produced by departments (paragraph 251).

Appendix

Imperial College of Science, Technology and Medicine's response to the audit report

The College welcomes the judgement in the report that broad confidence can be placed in the present and future management of the quality of the College's programmes and in the academic standard of its awards. The College is pleased that the four discipline audit trails confirmed this judgement. The College found the process of audit to be fair and transparent, and its outcomes constructive.

The College welcomes the commendation of several instances of good practice in the report. In particular, we are pleased that the value the College places on excellence in teaching, and the innovative and wide-ranging means by which the College strives to raise awareness of higher education among school students through its outreach activity, have been recognised.

The College is in the process of drawing up an action plan in response to the recommendations made in the report and intends to take this forward during the academic year 2005-2006.

