

UNIVERSITY OF GLASGOW

Academic Standards Committee - Friday 7 October 2011

Periodic Subject Review: Report of the Review of Electronics and Electrical Engineering held on 24 February 2011

Ms Helen Clegg, Clerk to the Review Panel

Review Panel:

Professor Graham Caie	Clerk of Senate and Vice Principal, Convener
Dr Les Haworth	University of Edinburgh, External Subject Specialist
Dr Lewis Mackenzie	School of Computing Science, Cognate Member
Professor Muffy Calder	Senate Assessor on Court
Dr Velda McCune	Learning and Teaching Centre
Mr Stuart Ritchie	Student Representative
Ms Helen Clegg	Senate Office, Clerk to the Review Panel

1. Introduction

1.1 Background Information

- 1.1.1 Electronics and Electrical Engineering (EEE) is one of five disciplines within the newly-formed School of Engineering. It is part of the College of Science and Engineering, and is located within the Rankine Building in Oakfield Avenue. Within the building, it has access to four lecture theatres, a number of core electronics fabrication and test laboratories, semiconductor cleanroom facilities, and computing clusters offering access to specialist software. Additionally it has an anechoic chamber for student use and access to a broad range of state of the art research laboratory equipment. Postgraduate students also have access to the James Watt Nanofabrication Centre.
- 1.1.2 EEE had last been reviewed internally in April 2005, under the Review of Departmental Programmes of Learning, Teaching and Assessment (DPTLA) process. The University's Academic Standards Committee had since approved a proposal to undertake a full combined review of Engineering subjects in 2013-14 but, as each subject area required to be reviewed on a six-year cycle, it had been agreed to treat the current review of EEE as a 'mini review'. This would focus only on levels 3, 4, 5 and Masters provision.
- 1.1.3 The Self-Evaluation Report (SER) had been prepared by the Head of Discipline, together with the QAA Officer, the MSc Director of Studies, the MSc Co-ordinator and the former Staff/Student Committee Convener. It was noted that input had been sought from staff and students. This inclusive approach was **commended** by the Panel as good practice.

1.1.4 The Panel met with the College Dean of Learning and Teaching, the Head of School, the Head of Discipline, 13 members of staff, 4 Graduate Teaching Assistants (GTAs), 15 undergraduate students and 17 taught postgraduate students.

1.1.5 The Discipline is made up of 33 members of academic staff, comprising 15 Professors, 1 Reader, 8 Senior Lecturers and 9 Lecturers. It also has 13 research technologists and fellows, 42 technicians and 6 administrative and secretarial staff.

1.1.6 Student numbers for Session 2010-11 are as follows:

Students	Headcount
Level 1	55
Level 2	61
Level 3	54
Level 4	44
Level 5	12
Undergraduate Total	226
Postgraduate Taught	56
Postgraduate Research*	83

*(for information only - research is not covered by the Review)

1.1.7 The Review Panel considered the following range of provision offered by the Discipline:

- BEng/MEng Electronics and Electrical Engineering
- BEng/MEng Audio and Video Engineering
- BEng/MEng Microcomputer Systems Engineering
- MSc Electronics and Electrical Engineering
- MSc Telecommunications
- MSc Electronics Design

The Discipline contributes to the following joint degree programmes offered with other Disciplines/Schools:

- BEng/MEng Avionics (with the Aerospace Engineering Discipline)
- BEng/MEng Electronics and Software Engineering (with the School of Computing Science)
- BEng/MEng Electronics with Music (with the School of Culture and Creative Arts)
- MSc Electronics and Electrical Engineering with Management (with the Business School)
- MSc Computer Systems Engineering (with the School of Computing Science)

- MSc Signal Processing, Electronic and Computational Techniques for Researching and Understanding Music (SPECTRUM) (with the School of Culture and Creative Arts)

Additionally, EEE staff members contribute teaching to Aeronautical Engineering, Mechanical Engineering and Biomedical Engineering programmes, as well as Level 1 Mathematics and some Level 1 and 2 courses in the B.Tech.Ed programme run by the School of Education.

The Discipline also contributes to the following degree programmes offered by other institutions:

- MSc System Level Integration (with the Universities of Edinburgh, Heriot-Watt and Strathclyde)

The Panel noted that three new interdisciplinary MSc programmes were being proposed for the 2011-12 session:

- MSc Sustainable Energy (with the other Engineering disciplines, the Schools of Chemistry, Physics, Geographical and Earth Sciences, Interdisciplinary Studies and the Business School)
- MSc Embedded Electronic Systems (with the School of Computing Science)
- MSc Mechatronics (with the Mechanical Engineering discipline)

Finally, it was reported in the SER that EEE, in collaboration with Mechanical Engineering, would deliver the third and fourth years of a BEng in Mechatronics on the campus of Ngee Ann Polytechnic, having signed an agreement with the Singapore Institute of Technology.

2. Overall aims of the Department's provision and how it supports the University Strategic Plan

The Self-Evaluation Report set out the overall aims of EEE's provision. The Panel was content that these aims were in line with the University's Strategic Plan, particularly the aims to provide a breadth of effective and stimulating teaching, based on internationally-leading research, and to raise all activities to the level of a major international engineering school. The School of Engineering had devised clear objectives to assist in attaining its aims.

It was noted that, at undergraduate level, EEE's aim was to provide a sound base of fundamental principles, particularly in the areas of physics and mathematics, and opportunities to apply learning. Specialist skills could then be focused on in the later years. At postgraduate level, the discipline offered students opportunities to enhance their specialist knowledge and skills, informed by current research.

The recent restructuring of the University was considered by EEE to be beneficial in many ways, lowering barriers to the development of interdisciplinary provision at Masters level. The new MSc programmes being proposed this year had come about as a result of this new opportunity.

However, there was some concern amongst staff that the discipline of EEE as an entity had rather disappeared from visibility under the new structure. Under

the School of Engineering heading, staff members were listed by research area, rather than discipline, and courses were listed at School level. This made it more difficult, the Panel heard, for students and prospective applicants to identify the subject area and its available courses. Panel members believed this might change with the advent of the new Campus Solutions system, although this would only be the case if an additional layer (e.g. Electronics and Electrical Engineering subject area) was added to the existing School structure. Some staff considered that the grouping solely by research area gave the impression teaching was not a priority. Some staff also expressed concerns about the term 'discipline' being used, as this had negative connotations and could be confusing for students – particularly from overseas. The Panel **recommends** that discussion takes place within the School, and with the Student Lifecycle Project team, to ensure that, when the Campus Solutions system goes live in August 2011, the different subject areas, and their courses and programmes, within the School of Engineering are clearly identifiable. Additionally, the Panel **recommends** that consideration be given by the School of Engineering to the suitability of the term 'discipline' given its negative connotations, the potential for confusion and its lack of use elsewhere in the University.

3. An Evaluation of the Student Learning Experience

3.1 Aims

3.1.1 At undergraduate level, aims were heavily informed by the Engineering Council's UK Standard for Professional Engineering Competence (UK-SPEC), which was based on the professional expertise of practitioners in the field. The QAA benchmark statement on Engineering also informed programme aims.

3.1.2 The aims of EEE's provision were detailed in the associated Programme Specifications and were broadly in line with the Learning and Teaching Strategy. Programme Specifications were publicly available through the University website. However, the Panel noted from the SER that it was the practice in Engineering to record only generic aims in the programme specification, referring the reader to the Undergraduate Handbook for more specific detail. This was not in line with University practice, which required that the content of each Programme Specification was specific to the particular programme. This would become even more important with the advent of the Higher Education Achievement Record (HEAR), being introduced this year, which was intended to link each student's HEAR (incorporating a transcript) with the Programme Specification specific to that student's programme of study. The Panel therefore **recommends** that EEE revise its Programme Specifications in line with University policy to ensure each provides aims specific to each individual programme, rather than providing generic aims and referring the reader to the Student Handbook.

3.2 Intended Learning Outcomes (ILOs)

3.2.1 Intended Learning Outcomes (ILOs) for programmes and courses were provided in the Programme and Course Specifications, in the Undergraduate Handbook distributed to undergraduate students and the MSc Handbook given to postgraduate students.

- 3.2.2 As with programme aims, only generic ILOs are given in the programme and course specifications. For the reasons outlined in 3.1.2 above, The Panel **recommends** that EEE revise its Programme Specifications in line with University policy to ensure each provides Intended Learning Outcomes specific to each individual course or programme, rather than providing generic aims and referring the reader to the Student Handbook.
- 3.2.3 Postgraduate students from the ERASMUS scheme stated that they had not had sufficient information about the available courses prior to arriving in Glasgow, and that this had made it difficult for them to select courses to study. Additionally, they stated that the course information given to them was not sufficiently detailed, and that the outcomes were not clear. They could, therefore, not decide in advance if the course fitted the recommendations of their home university or whether it covered material they had already studied at their home institution. The Panel **recommends** that, in addition to clarifying aims and Intended Learning Outcomes for all courses and programmes, ERASMUS students receive full information about available courses in good time for selection prior to arrival in Glasgow, in order to assist them with course selection.
- 3.2.4 The undergraduate student group reported that they considered the aims and ILOs for their degree and courses, as they appeared in the Undergraduate Student Handbook, to be clear. The Panel appreciated that the Handbook was readily available to all students, and did not propose the removal of information on aims and ILOs from that source. The Panel did nonetheless consider there was a real need to detail these in the programme and course specifications, as outlined in 3.1.2 and 3.2.2 above.

3.3 *Assessment, Feedback and Achievement*

Assessment Methods

- 3.3.1 It was stated in the SER that the assessment for most courses comprised coursework assignments, assessed laboratory classes, and formal examinations. At undergraduate level, the relative weighting of each component varied with the nature of the class, with some topics (such as mathematics) being best assessed through formal examinations. For MSc programmes, each course was weighted as standard at 70:30 examination:coursework, to avoid confusion for students who typically only attended the University for one year. Information about the weighting of assessment was available in student handbooks, and on Moodle.
- 3.3.2 It was noted that, in line with University policy, some examinations had been shortened from three to two hours. However, undergraduate students considered that, despite the examinations being shortened, there had been no reduction in the content of the paper. The Head of Discipline acknowledged that this had been a problem in the first year of the new structure, for a small number of modules, but that this had since been resolved.
- 3.3.3 The Head of Discipline reported that the movement of the Semester 1 examinations from January to before the Christmas break had led to problems, as tutorial work and laboratory reports had deadlines which now clashed with the revision period. Some of the undergraduate students also reported this as a difficulty, though it was not a unanimous view. Consideration was already being given as to ways of resolving this,

but the Head of Discipline was uncertain that an ideal solution could be found.

3.3.4 With regard to postgraduate projects, the postgraduate student groups stated that they had received a list of possible projects only recently. However, some reported that, on enquiring about particular project titles, they were told some of these were no longer available. Additionally, some students were keen to undertake projects that spanned two subject areas – such as EEE and management – but were unsure how to go about this. The staff group was unclear as to how this issue could have arisen, as the list had been checked and was up to date. The Head of Discipline agreed, and confirmed the list circulated to students was indeed correct and up to date.

3.3.5 EEE had trialled the plagiarism detection software Turnitin at postgraduate research level and, as a result, had decided to introduce it discipline-wide in 2011-12.

Feedback

3.3.6 The Panel noted that NSS results suggested that students' perception of the quality of feedback they received had remained largely static, though the promptness had improved. EEE had noted in the SER that this was an area in which improvement was possible. Although EEE had already made some improvement, there was a feeling that this had not been perceived by the student body.

3.3.7 EEE aimed to provide feedback within three weeks of submission, in line with University-wide policy. However, the student groups advised that this did not always happen. The postgraduate student group in particular reported that, for some courses, they had not received feedback on their coursework until after they had sat the examination, and therefore could not make effective use of that feedback. The staff group acknowledged this was an issue in some cases, though stated timely feedback was provided to students in most cases and wherever possible. They explained that, for some courses, coursework was being submitted right up until the beginning of the examination period, due to the move to a pre-Christmas examination diet. This therefore left little or no time to provide feedback prior to examinations. In many cases it was not considered feasible to have earlier submission dates, as students required to have been taught sufficient material on which a coursework could be based. Staff reported this was not an issue in Semester 2, where there was more time between coursework submission dates and the examination period.

3.3.8 The undergraduate students' experience was variable, with prompt, detailed feedback being given for some courses but not others. They reported that it could be difficult to know, prior to the final examinations, how well they understood the material if they had not received feedback. Although the Panel recognised that it was not always possible to give feedback within the suggested three week period, it considered it was important to assist students in managing their expectations. Therefore, the Panel **recommends** that EEE communicates clearly to students any delays in feedback being returned to students, and gives a clear indication of when feedback on assessment can be expected. Alternative feedback mechanisms might also be used to make more prompt feedback possible.

- 3.3.9 Postgraduate students stated that they would like feedback on their formal examinations. Given that these were heavily weighted in many cases, and a good deal of effort went into preparing for them, they believed it would be helpful to know how well they had performed. Additionally, some students studying across two subject areas reported they had not yet received results from the Semester 1 examination diet. The Head of Discipline reported that feedback was not normally given for formal examination papers. The results that had not yet been released to students were from the Business School, rather than from EEE, and therefore he could not comment on the reason for the delay.
- 3.3.10 The undergraduate students requested that worked solutions for specimen or past examination papers be provided to them. They explained that they had asked for these and been refused. The students were unanimous in the view that these would be extremely helpful – particularly in cases where coursework feedback could not be provided before examinations. The Panel **recommends** that a specimen or past examination paper, with worked solutions, be made available for each examined course, in order to assist students with their revision.
- 3.3.11 The postgraduate student group reported that they were required to do project work, but that it was difficult for them to know how to do well in these as little guidance was given. They also reported that they received no feedback on their project – simply a final grade for the overall course. The Panel **recommends** that EEE provide adequate feedback on project work in the same way as for other coursework, and that guidance on how to perform well in projects, perhaps in the form of grade descriptors, is provided to students.

Achievement

- 3.3.12 It was noted in the SER that External Examiners considered that the cohorts generally performed well, and that the means of assessment fairly reflected their achievements.

3.4 *Curriculum Design, Development and Content*

- 3.4.1 Until the recent restructuring, EEE had operated with a Curriculum Review Committee (CRC) which reviewed the structure, content and coherence of all EEEs courses and programmes. A full, comprehensive review of provision was completed in 2009, with the result that the number of courses available was streamlined but without diluting the content of programmes.
- 3.4.2 Since restructuring, the responsibility for reviewing course and programme design and content had moved to the School of Engineering's Learning and Teaching Committee. Proposals for new courses and changes to existing ones were evaluated by this Committee in the context of overall provision, resource implications, the balancing of staff workloads and coherence with other provision.
- 3.4.3 It was noted that there was a combination of theoretical and practical elements in all courses. Whilst practical work was more resource intensive, particularly laboratory work, this was considered essential in terms of employability within the profession. The undergraduate student group agreed, reporting that they particularly appreciated having so many opportunities to apply their learning in practical ways. The Panel **commended** EEE on its commitment to laboratory provision.

- 3.4.4 The undergraduate curriculum was designed to allow progressive learning and skill development, moving from fundamental principles in levels 1 and 2, to the understanding of more advanced technical topics in levels 3, 4 and 5. The understanding of mathematical principles was key to this.
- 3.4.5 It was noted in the SER that personal, professional and transferable skills were developed at all levels through activities such as design projects.
- 3.4.6 The Head of Discipline reported that there was an Industrial Liaison Board, which offered support and advice about programme and course proposals. Many industrialists were engaged in the Board, which met regularly, and they had provided suggestions which had informed the development of several new MSc programmes being proposed for Session 2011-12.
- 3.4.7 The Panel noted that staff research interests informed teaching to a large extent, particularly from level 4 onwards in the provision of project topics. Additionally, some optional courses were made available due to the specific expertise or research interest of staff members. The staff group were happy with this approach, though had some concerns that the loss of staff could lead to the loss of certain specialist courses. The Panel **commended** EEE on the emphasis placed on providing rich and well-supported project work opportunities for undergraduate students.
- 3.4.8 Whilst the undergraduate student group were clearly satisfied with the design and content of their degrees, they offered suggestions for possible future improvement. They reported that, in Year 4, they were able to choose between either a language or a design project. However, they felt this was rather detached from the rest of the Year 4 curriculum and considered it might fit more appropriately into Level 2. The Panel **recommends** that EEE consider this request and assess the viability of moving the language or design project option to Year 2.
- 3.4.9 Undergraduate students also reported that one course, Data Acquisition for Music Processing 3, had been particularly enjoyable. However, they considered it had been too short and were disappointed it attracted only 10 credits. At present, the course was teamed with another 10 credit course, but students took the view that it would improve their learning if Data Acquisition for Music Processing 3 was extended to attract 20 credits (with additional material included to justify this), replacing the second 10 credit course. The student view was that the course represented what they considered Electronics with Music should be about. The Panel **recommends** that EEE consider this request and assess the viability of extending Data Acquisition for Music Processing 3 into a 20 credit course and discontinuing the existing additional 10 credit course that follows it.
- 3.4.10 Some of the postgraduate students expressed the view that certain aspects of the course material were rather basic, and they had expected it to be more challenging. They explained that courses sometimes covered material they had already covered in their undergraduate degrees. Given that many of the postgraduate students were from overseas institutions, the Panel considered it would be extremely difficult to avoid this, however. The Panel also noted that the view was not widespread, with some students reporting that they found much of the course material challenging.

- 3.4.11 The Panel noted some dissatisfaction from postgraduate students on the MSc Electronics and Electrical Engineering with Business, regarding what they saw as a lack of integration of the organisation of the degree. For example, they reported that the courses taken in the Business School did not relate to engineering, and that their project supervisor would be from one or other of the subjects, and therefore could not advise on both. This led to a feeling of disjointedness. The Head of Discipline agreed this was a valid concern and reported that, although most students tended to select a project in one subject, a project spanning both subjects could be selected. However, although possible in theory, little guidance for such a project existed in practice. The Panel **recommends** that discussions take place between the Head of Discipline (EEE) and the Head of the Business School with a view to identifying ways in which integration of the two subjects could be improved, and thereby enhance the experience of students on the MSc Electronics and Electrical Engineering with Business.
- 3.4.12 The GTAs group reported that they often had to spend time in laboratory classes teaching students the correct procedures for working in cleanrooms. This therefore reduced the amount of time available for the planned material/activities. The GTAs considered that students should be taught these procedures early in their studies as a key area of knowledge. The Panel **recommends** that training on cleanroom procedures should be provided to all relevant students as early as possible in their degrees.

3.5 *Student Recruitment*

- 3.5.1 It was noted that EEE attracted around 60 home and EU entrants annually, with some fluctuation from year to year. The Head of Discipline expressed the view that applications were affected by perceptions conveyed in the media, and by careers advisers in schools, of the buoyancy of the electronics industry. Whilst these were often inaccurate, they did appear to affect demand for electronics degrees across the UK and particularly in the west of Scotland.
- 3.5.2 It was stated in the SER that the University of Strathclyde was considered the 'technical' university in the West of Scotland and had, in the past, attracted applicants away from the University of Glasgow. After much discussion, EEE had decided to increase its entrance requirements significantly, emphasising its international nature and the quality of careers graduates could expect. Within two years of this change, the quality of the level 1 cohort had improved and there was no need to rely on the clearing process to fill places. The strategy was adopted across the other Engineering disciplines and these, rather than Strathclyde, were now EEEs main competitors.
- 3.5.3 The increased entrance requirement had, however, impacted on the intake to other degrees. Historically, the entrance requirement for the BEng Electronics with Music degree was higher than for other degrees, and it met its target numbers with ease. However, due to a cap on total numbers within the School, the increased interest in the core BEng Electronics and Electrical Engineering degree had squeezed numbers for Electronics with Music. The Discipline had not considered this a particular problem, preferring to target quality rather than volume for this particularly challenging degree.

- 3.5.4 EEE is involved in encouraging recruitment from under-represented or disadvantaged groups, through the hosting of a summer school for GOALS students, and articulation with HNC and HND students. It was noted in the SER that there is a wide ethnic mix, but a very small number of female students, in common with other engineering disciplines UK-wide. The BEng Electronics with Music attracts a higher percentage of female students than the other degrees. EEE has attempted to encourage more female applicants by employing female students to act as tour guides and exemplars at Open Days.
- 3.5.5 Although EEE has traditionally participated in a wide range of recruitment activities, it reports that the increased entry requirement, and the implied exclusivity resulting from this, has produced the most significant increase in applicant numbers. The staff group agreed, stating that students accepted to their degrees were making more effort, given the increased difficulty of gaining a place at a high quality institution.
- 3.5.6 Some of the other degrees showed small student numbers, such as the BEng Microcomputer Systems Engineering, but the Head of Discipline noted that no additional resource was required to continue to offer this degree, given that it was made of up existing provision offered in the other degrees. The BEng Audio and Video Engineering had also had low numbers, but it was noted from the SER that there had been increased interest of late, partly due to the publicity generated by student projects, which are discussed at Open Days.
- 3.5.7 The Head of School reported that consideration was currently being given to the possibility of a common first year across all undergraduate degrees within the School. The Head of Discipline believed this would be beneficial to EEE, with its high standard of teaching encouraging students who had perhaps chosen a different discipline to study EEE degrees. Given that Electronics and Electrical Engineering was not a subject taught at school, new entrants were unsure what it involved, and an introduction to the subject at level 1 would therefore be beneficial in helping them decide on a particular discipline.
- 3.5.8 It was noted that the Discipline regularly admitted overseas students directly into level 3, under agreements with the University Brunei Darussalam and Rima College in Malaysia. These students focus on the BEng Electronics and Electrical Engineering, specialising in courses associated with the power and telecommunications industries.
- 3.5.9 Intake to the MSc degrees has doubled and the Discipline does not believe saturation point has been reached. Several new MSc degrees are being proposed in the coming session.
- 3.5.10 The postgraduate student group confirmed that there had been an induction session arranged for them, which had included useful information about the library, plagiarism and so on. However, they felt it could have been more tailored to them as engineering students as their needs were not the same as, for example, arts students. The Panel **recommends** that EEE investigate the possibility of making the postgraduate induction session more closely tailored to the needs of engineering students.
- 3.5.11 The staff group appreciated the difficulties experienced by the postgraduate students, although noted that attendance at the January induction session had been extremely poor, with many students arriving

very late due to visa problems. They reported that this had been disruptive, and had led to a number of laboratory classes having to be repeated.

3.5.12 With a likely increase in numbers coming from additional MSc provision, there was concern that EEE's capacity to continue enhancing the student experience through the quality of its provision could be affected. With additional numbers came clear resource implications, e.g. with regard to staff workload and laboratory space. The Head of Discipline was confident staff would rise to the challenge, but noted that the potential impact should not be underestimated.

3.6 *Student Progression, Retention and Support*

3.6.1 EEE reported in the SER that there was a decline in the preparation of incoming students with regard to mathematics, which was considered to be attributable to changes in mathematics teaching in schools. This created difficulty for the engineering disciplines, as many incoming students with Higher Mathematics appeared to lack certain basic skills. In order to try to combat this, EEE co-ordinates its own Engineering Mathematics courses, and 50 out of the 70 credits of distinct mathematics modules in years 1-3 are taught by EEE staff (as opposed to the usual arrangement of mathematics teaching being provided by the Mathematics subject area). This had the benefit of being able to embed Engineering Mathematics in the context of engineering applications.

3.6.2 Progression, particularly from level 1 to 2, was of some concern within the discipline. EEE staff suggested that this could be attributed to unrealistic expectations about the nature of the subject and the workload involved in studying an engineering subject, or to the pressures of part-time employment. EEE wished to significantly reduce the number of students failing to progress, and had implemented several initiatives to assist with this. The increased entry requirement was also likely to have an impact, as this would help select more motivated, committed students.

3.6.3 The undergraduate students reported that their expectations about their degrees had been realistic. They stated that some students dropped out of the Electronics with Music degree, having had the expectation that it was more along the lines of a sound engineering programme. However, the students confirmed they had received clear advice about the nature of the EEE with Music programme and knew what to expect.

3.6.4 Amongst the initiatives put in place to support students were the distribution of newsletters and welcome packs prior to joining, team building exercises early in the session, and a 'zero tolerance' approach to absence. This allowed students to be contacted after any noted absence and any difficulties could be dealt with early. There was also a small-group tutoring system at level 1 which helped to bond students and provide peer support. The tutors, whilst not acting as Advisers of Study, acted as mentors.

3.6.5 The staff group reported that a good deal of effort had gone into improving attendance rates, and that the 'zero tolerance' approach had rescued some students from potential failure. However, whilst retention rates had improved, grades had appeared unaffected. There was a suggestion that the emphasis on teamwork had more success in improving attendance, with students not wishing to let classmates down. One obstacle noted as being problematic to attendance was the issue of

timetabling, as students sometimes only had one scheduled class on a particular day, making it much less likely they would attend.

- 3.6.6 EEE had noted that international students joining level 3, and Masters students, appeared to require less support, being more mature when they arrived and already having functioning support networks in place.
- 3.6.7 The undergraduate students were complimentary about the degree to which they were helped and supported by staff. They stated that staff were very approachable and were happy to give their time.
- 3.6.8 In contrast, the postgraduate students reported that they felt rather 'neglected' and that they perceived a desire from staff to focus on research rather than teaching and support. However, the staff group countered that support was readily offered and not taken up. For example, an 'Open Hour' had been implemented once a week where postgraduate students could seek support and advice from a senior member of staff. Although a large number of students had used the service in its first week, almost none had attended since. The Head of Discipline recognised that there was dissatisfaction amongst the postgraduate students, though believed this may be due to unrealistic expectations, rather than any particular deficiency in their provision or treatment. He reported that External Examiners had noted similar student attitudes, to the same or higher degrees, in cohorts at their own Universities who had progressed further down the track of increasing international student intake into Engineering. Thus the External Examiners had felt that this was an inherent problem with any large intake of international students. The Panel understood that not all of the contributory factors were within the control of the School (e.g. the late arrival of some students, and the compressed nature of the first semester) but considered that steps could be taken by the Subject Area to deal with this dissatisfaction. Therefore, the Panel **recommends** that the Subject Area consider the possibility of implementing support mechanisms for those students who are unavoidably delayed in joining their programme. Additionally, student expectations should be managed more effectively, giving clear indications of expected timescales for feedback provision and how delays will be handled. The Panel further **recommends** that efforts be made to foster a sense of belonging amongst the postgraduate students. This might include meetings with senior members of staff, one-to-one meetings, or inclusion in social events currently only provided for undergraduate students. Focus groups could also be arranged by the Learning and Teaching Centre in order to ascertain the precise nature of student dissatisfaction.
- 3.6.9 Level 5 students carrying out industrial projects reported that they were supported by two supervisors from the University and a third supervisor within the company providing the placement. Sometimes a University supervisor might visit the student at the company but this was not always feasible due to the distance and cost involved. Interim reports and email correspondence ensured contact was maintained and any problems were identified.
- 3.6.10 An issue raised by the GTAs group related to the student numbers for tutorial groups, in particular for level 1 course Mathematics for Engineers. The number of students in this group was very high – at present, a single group of 60 students amongst 5 tutors, and this made it almost impossible for the GTAs to respond to all student questions. In order to

better support and advice students, the GTAs considered it would be preferable for a group of twelve students to be allocated to each tutor, rather than the current system whereby all five tutors worked with all 60 students. The Head of Discipline reported that arrangements had been made at the beginning of session to break the class into five tutorial groups, and was therefore unclear as to why this had not happened in practice. The Panel **recommends** that the tutorial group structure be communicated clearly to all concerned, in order to facilitate support for all students in tutorial groups.

3.7 *The Quality of Learning Opportunities*

- 3.7.1 EEE was found to use a number traditional teaching and learning methods in tandem with more innovative ones, making good use of technology. Each method had been found to have its own strengths and weaknesses, but it was suggested by staff that Engineering students tended, on the whole, to prefer the 'chalk and talk' method. Many lecturers also mounted their lecture notes, problem sheets and solutions on Moodle, and this was appreciated by students, though there was a feeling that providing notes in this way could discourage students from attending classes.
- 3.7.2 In addition to lecturers, tutorials were also arranged whereby students could query in more detail certain points they had not understood well, or to work through set problems.
- 3.7.3 It was noted from the SER that, at levels 1 to 3, all courses offered laboratory classes. Although this practice was seen to be declining in other institutions, largely for resource and timetabling reasons, EEE had maintained a high number of laboratory classes, stating that to reduce these would seriously compromise the quality and value of their students' education. The undergraduate student group remarked that the amount of laboratory/practical work they were able to undertake was one of the best aspects of their degree, and noted that this was not common practice in other institutions. The Panel **commended** EEE for its commitment to maintaining this quality of provision despite the obvious difficulties presented by doing so.
- 3.7.4 Small group discussions also took place, which EEE considered to be particularly appropriate for project-based courses. The undergraduate student groups reported that, although a considerable amount of effort was required for project work, it was essential experience for their future employment. They appreciated the frequent opportunities to apply their knowledge practically.
- 3.7.5 The Head of Discipline stated that, ideally, EEE would like to provide more hands-on teaching, with students using state-of-the-art equipment and building physical objects to fit with their level of knowledge. Whilst being taken on the guided tour of EEE, the Panel had the opportunity to view some student projects where learning was taking place in this way. However, the Head of School reported that these sorts of classes were difficult to create, due to time, equipment and workshop access factors.
- 3.7.6 The undergraduate students were extremely satisfied with their experience so far, reporting that the quality of teaching was very high and that the mix of available courses was appropriate and interesting. They felt their degrees would prepare them well for employment, particularly due to the emphasis on practical and project work.

- 3.7.7 The undergraduate students spoke highly of their experiences of the industrial placement. They reported that the exact nature of the project was largely defined by the company. They stated that supervision whilst on placement went smoothly, with the academic supervisor taking a hands-off role. Although the students stated it could be difficult to find placements, particularly in the current economic climate, they explained that they did receive assistance and advice about opportunities and contacts from staff within EEE. The industrial placement is a distinctive aspect of the undergraduate MEng programmes, and the Panel **commended** EEE for its commitment to providing such a project that enhances student career prospects.
- 3.7.8 Undergraduate students expressed some dissatisfaction with the timing of the industrial placement mid-way through the semester, however, suggesting it would be more beneficial to move it to the end of the semester. This would then give students the opportunity of staying with the company should the opportunity arise. They also reported that, with many employers offering placements either over the summer months, or for a 12-month period, the employers' needs did not always match with the students'. The Head of Discipline stated that this issue had been discussed in the past, but that the timing had been agreed in order to make the placement internationally viable. He recognised, however, that it did not fit particularly well with UK companies. He reported that the Aerospace Engineering discipline had moved to an end-of-semester placement but that, due to the examination diet, this was restricted to a three month placement.

3.8 *Resources for Learning and Teaching*

Staffing

- 3.8.1 It was noted that EEE had 33 members of academic teaching staff and 8 research technologists. Teaching duties were regularly circulated amongst staff, so there were no areas of teaching that could only be taught by one staff member, although provision in the area of digital systems (computer architecture, communications and embedded processors) was limited to a very small number of members of staff. The situation with a few specialist courses, including in the area of Power Engineering was different, with only one staff member responsible for teaching.
- 3.8.2 The Panel noted that there was a good deal of technical and administrative support available to EEE. The move from Departments to the School of Engineering had restructured the available support, with increased, shared, central support from a School Learning and Teaching Office replacing more limited local support. The fine details of the organisation and procedures of the central office were still being clarified.
- 3.8.3 The Head of Discipline expressed concern about the extra workload that would be necessarily placed on staff with the increasing numbers of postgraduate students. He stated that staff would try to cope, and would do so for a time, but he believed that this was not sustainable and that eventually the extra numbers would have a notable impact on the student experience and on staff morale.
- 3.8.4 The staff group reported that there were competing priorities with regard to research and teaching. Staff members were keen to teach, but stated there were huge pressures to undertake research, particularly for

members of staff in the early stages of their career. They reported the University sometimes gave conflicting messages about prioritisation.

3.8.5 The GTAs group reported that the amount of teaching they undertook was satisfactory, provided they had sufficient notice to plan ahead. They advised that it was not compulsory for them to take on any teaching responsibility, but that they chose to do so and could specify how much or how little time they could devote to teaching. They stated that they spent a lot of time preparing for laboratory classes, and that their workload had been higher over the past year in this respect due to the need to repeat labs to accommodate higher MSc student numbers and late arrivals. All were positive about their experiences, however, and recognised that dealing with student questions was beneficial to the GTAs themselves, in that they researched topics more widely in order to be able to answer queries.

3.8.6 The GTAs felt adequately supported in their role generally, but reported they did not formally receive feedback on their performance. Additionally, none had received any training in teaching. Although training was available, they had not undertaken it. The Panel **recommends** that EEE ensures all GTAs receive the training required by Senate regulations:

<http://www.gla.ac.uk/services/learningteaching/taughtcourses/graduateachingassistantstutorsanddemonstratorsstatutorytraining/senateregulations/#d.en.7901>

3.8.7 One problematic issue raised by the GTAs group was that, on occasion, it was not clear to them what stage of the course students had reached in lectures, and this made it difficult to prepare laboratories and tutorials at the correct level. The Panel **recommends** that EEE devise, and adhere to, a systematic means of communicating to GTAs the progress of student groups through the course material, in order to ensure that the GTAs have sufficient time to prepare laboratory and tutorial materials that match students' progress through the course.

Physical Resources

3.8.8 The Panel was given a short guided tour of EEE's facilities within the Rankine Building. It was noted that some of the equipment in particular laboratories was dated and would benefit greatly from being replaced. The Head of Discipline reported the difficulty in replacing items that were particularly expensive, but equally the challenge of teaching with deficient equipment. He reported that the lack of particular pieces of equipment could present problems with regard to the upcoming accreditation visit. Additionally, lack of equipment and laboratory space meant that certain classes had to be taught multiple times. The staff group also had concerns that some software licences could disappear due to lack of funds. It was noted that, on occasion, costs had been subsidised by research income, but that flexibility in resourcing was needed in order to provide satisfactory equipment for current and future students. The College Dean of Learning and Teaching reported that bids for equipment funding could be made this year for items costing under £25k, and that such bids should be made as soon as possible. The Panel **recommends** that the College of Science and Engineering give careful consideration to the issue of updating essential teaching equipment, given the detrimental effect of not doing so on current students and on recruitment.

- 3.8.9 The Head of Discipline reported that there was no dedicated MSc laboratory, and that current MSc laboratories were required frequently for undergraduate teaching. With the increasing number of postgraduate students, he considered this a significant deficiency.
- 3.8.10 Regarding lecture space, the Panel noted that there was a lack of appropriately sized lecture rooms within the Rankine Building, which meant students often had lectures campus-wide. Unfortunately, this was a University-wide issue and one frequently raised at reviews such as this. As yet, there seemed no straightforward solution.
- 3.8.11 It was reported in the SER that there was no informal space available in the Rankine Building for undergraduate students. Additionally, the postgraduate student space was their normal seminar room. With postgraduate numbers increasing, this would soon be inadequate. This presented problems not only for existing students, but in attracting potential students. The School of Engineering was currently reviewing available space but the Panel understood space was at a premium. The Panel **recommends** that the School, the College, and Estates and Buildings work together to identify suitable social/study space and make it available as soon as is practically achievable.

4. Maintaining the Standards of Awards

Benchmark Statement and other External Reference points

- 4.1 It was noted in the SER that, at undergraduate level, curricula were informed by the Engineering Council's UK Standard for Professional Engineering Competence (UK-SPEC), based on the professional expertise of practitioners in the field. The QAA benchmark statement on Engineering also informed programme and course content. The Panel considered this was appropriate.
- 4.2 There was no benchmark statement specific to MSc programmes. Each programme was developed on the basis of the academic expertise of the staff member involved, and then scrutinised by the School, College and finally Senate. The Panel considered this was appropriate, and typical of other MSc programmes throughout the University.
- 4.3 The Institution of Engineering and Technology (IET) accredited all programmes within EEE. An accreditation visit was due to take place imminently.
- 4.4 The Head of Discipline reported that the need to satisfy accreditation requirements had an effect on provision. It was noted that, with regard to the MEng, the programme components linked together well, with a number of specialist options and an international placement. However, the IET expected to see direct level 4/5 hierarchy, which did not fit the integrated provision. With these divergent requirements needing to be fulfilled, the Head of Discipline was unconvinced there was a perfect solution. Additionally, accreditation requirements meant that other topics EEE would like to teach could not be accommodated in the curricula.

External Examiners

- 4.5 It was stated in the SER that External Examiners played an extremely important role in ensuring standards were maintained, through providing a means of comparison with other institutions.

- 4.6 There were two External Examiners for undergraduate courses and two for postgraduate courses, due to the student numbers involved and the broad range of provision. Each attended the relevant Boards of Examiners, and scrutinised examination scripts, assignments, laboratory reports and dissertations.
- 4.7 External Examiners had been generally positive about EEE and its teaching and provision, and comments made had informed course and programme developments.

5. Assuring and Enhancing the Quality of the Students' Learning Experience

Programme Enhancements

- 5.1 The strong research environment was considered by the Panel to be one of EEE's main strengths. This enhanced the teaching and learning processes from the application of cutting-edge techniques to teaching, and the provision and supervision of projects. It allowed for curricula to be constantly refreshed, making sure the student experience was as current and professionally applicable as it could be.
- 5.2 Several examples were given in the SER of new techniques employed by staff to enhance teaching and learning. These included the introduction of novel, hands-on experience of design and measurement of state-of-art RF components. The development of this encouraged a number of MSc students from the College of Industrial Technology in Libya to complete MSc study at Glasgow. The Panel also heard about new interdisciplinary project work with Film and Television Studies in which students write, direct and carry out the technical work on short films. This was now a unique selling point of the Audio and Video Engineering programme. The Panel also heard about the reprogramming of an automated 'clicker'/electronic voting system which significantly improved its functionality. EEE reported that the use of the clickers had aided retention at level 1 as well as making lectures a more enjoyable, interactive experience. This project had received support from the Learning & Teaching Development Fund but, in order to develop it fully, central computing support would be required. At present, this was not available, and the project had been shelved. The Panel encouraged EEE to explore alternative sources of funding for this project.
- 5.3 The undergraduate student group reported that, with teamwork being stressed throughout their degrees, they had particularly appreciated the various ways in which EEE had brought them together socially from the beginning of their study. This had included various induction and teambuilding activities, and a First Year party held at the start of session.
- 5.4 Some of the undergraduate students met by the Panel had participated in the ERASMUS scheme and had generally enjoyed the experience. Some had noted, however, that the grades they had achieved at the exchange institution did not appear on their Websurf record, making it appear as if they had been absent for that period. The Panel **recommends** that EEE, in communication with Registry, ensures that all grades from ERASMUS institutions appear on students' Websurf/Campus Solutions records in order to provide students with a comprehensive record of their studies.

Student Feedback Opportunities

- 5.5 It was noted from the SER that staff/student communication was encouraged and that a good deal of feedback was provided by students. The Staff/Student Liaison Committee was highly valued and staff reported that the minutes were sent to all staff by email for their responses. Minutes and responses were then posted on the EEE website so that all students could view them. The Panel **commended** this as good practice.
- 5.6 The postgraduate students reported that they were aware of the existence of the Staff/Student Liaison Committee, but that they did not know when meetings took place, or who their representative was. They explained that they preferred to raise issues directly with their Adviser of Studies. The Head of Discipline reported that it was often difficult to attract representatives from the postgraduate group, and that those who volunteered were often absent from meetings. The Panel **recommends** that, in order to improve postgraduate engagement with the Staff/Student Liaison Committee, clear information about the meeting dates, representatives and actions taken be posted prominently on Moodle (or other widely viewed page), with a link emailed to students.
- 5.7 In contrast, the undergraduate student group spoke positively about the Staff/Student Liaison Committee, noting that student attendance at meetings was good and that appropriate feedback was provided about action taken on the issues raised. Minutes of meetings were sent to student representatives and posted on the EEE website for all students to view. However, students considered that the minutes could be easier to find, and that a link emailed to all students would be a solution. The Panel's recommendation in 5.6 above would address this issue.

Annual Course Monitoring

- 5.8 The Panel noted that Annual Course Monitoring, together with student feedback questionnaires, informed course and programme enhancements. The Head of Discipline reported that there were reservations, however, about the use of questionnaires. In addition to the evidence of 'form fatigue' there was also a concern that the questionnaires did not probe in any detail the students' experiences. A new standard form produced by the University had tried to address these issues, but was not machine readable. Additionally, the Moodle version was accessed by very few students. The Panel suggests that EEE consult with the Learning and Teaching Centre about alternative methods of seeking feedback from students.

Employability and Personal Development

- 5.9 The Panel noted that there was a student Engineering Society, but that there had been difficulty in securing a student representative from EEE. The Head of Discipline suggested that students' interest in the Society depended largely on the drive of the academic staff involved in it, but also reported that it was difficult to gain commitment from students with a variety of conflicting demands to deal with. The undergraduate students stated that, with the Society being based in the James Watt building, they felt rather distanced from it and were not particularly encouraged to become involved.
- 5.10 The postgraduate students reported that they had little idea what employment opportunities were available to them on graduation. They stated that the careers service was helpful to an extent, but that it would

be particularly useful to have a session arranged where they could speak to previous graduates now in employment. The Panel **recommends** that EEE give consideration to arranging a careers session where postgraduate students can hear about the employment gained by previous students, to give them a better idea of the type of careers they could expect on graduation.

5.11 In contrast, the undergraduate students reported that they understood the various ways to seek out employment opportunities and knew where to look for these. In most cases, the students were already clear about the career path they planned to undertake on graduation.

6. Summary of Perceived Strengths and Areas for Improvement in Learning and Teaching

Key Strengths

- The inclusive approach that had been taken to preparation for the review [*Paragraph 1.1.3*];
- The commitment to laboratory provision [*Paragraphs 3.4.3 and 3.7.3*];
- The provision of rich, well-supported project opportunities for undergraduate students [*Paragraph 3.4.7*];
- High quality staff/student liaison procedures [*Paragraph 5.5*];
- The commitment to the inclusion of extensive practical and project work within courses and programmes, including an industrial project for MEng programmes, demonstrating academic and professional engagement and enhancing students' employability [*Paragraph 3.7.7*];

Areas to be Improved or Enhanced

- Communication and integration with other areas of the University with which joint or collaborative programmes are offered [*Paragraph 3.4.11*];
- The perception amongst postgraduate students of a lack of appropriate information and support [*Paragraph 3.6.8*];
- The Discipline's visibility within the School of Engineering and also within the College of Science and Engineering [*Paragraph 2*].

Conclusions and Recommendations

Conclusions

The Panel was impressed with the dedication and enthusiasm of the staff and GTA groups, and with the firm focus on practical work and employability. The undergraduate group in particular were enthusiastic and positive, and a credit to the Discipline.

EEE demonstrated a number of strengths, as well as an awareness of the areas requiring improvement. The most substantive of these are reflected in the recommendations that follow.

Recommendations

The recommendations interspersed in the preceding report are summarised below. They have been cross referenced to the paragraphs in the text of the report to which they refer, and are not ranked in any particular order.

Overall aims of the Department's provision and how it supports the University Strategic Plan

Recommendation 1

The Panel **recommends** that discussion takes place within the School, and with the Student Lifecycle Project team, to ensure that, when the Campus Solutions system goes live in August 2011, the different subject areas, and their courses and programmes, within the School of Engineering are clearly identifiable [*Paragraph 2*].

For the attention of: **Head of School, Heads of Subject, Student Lifecycle Project Team**

Recommendation 2

The Panel **recommends** that consideration be given by the School of Engineering to the suitability of the term 'discipline' given its negative connotations, the potential for confusion and its lack of use elsewhere in the University [*Paragraph 2*].

For the attention of: **Head of School, Heads of Subject**

Aims and Intended Learning Outcomes

Recommendation 3

The Panel **recommends** that EEE revise its Programme Specifications in line with University policy to ensure each provides aims specific to each individual programme, rather than providing generic aims and referring the reader to the Student Handbook [*Paragraph 3.1.2*].

For the attention of: **Head of Discipline**

Recommendation 4

The Panel **recommends** that EEE revise its Programme Specifications in line with University policy to ensure each provides Intended Learning Outcomes specific to each individual course or programme, rather than providing generic aims and referring the reader to the Student Handbook [*Paragraph 3.2.2*].

For the attention of: **Head of Discipline**

Recommendation 5

The Panel **recommends** that ERASMUS students receive full information about available courses in good time for selection prior to arrival in Glasgow, in order to assist them with course selection [*Paragraph 3.2.3*].

For the attention of: **Head of Discipline**

Assessment and Feedback

Recommendation 6

The Panel **recommends** that EEE communicates clearly to students any delays in feedback being returned to students, and gives a clear indication of when feedback on assessment can be expected. Alternative feedback mechanisms might also be used to make more prompt feedback possible. [*Paragraph 3.3.8*].

For the attention of: **Head of Discipline**

Recommendation 7

The Panel **recommends** that a specimen or past examination paper, with worked solutions, be made available for each examined course, in order to assist students with their revision [*Paragraph 3.3.10*].

For the attention of: **Head of Discipline**

Recommendation 8

The Panel **recommends** that EEE provide adequate feedback on project work in the same way as for other coursework, and that guidance on how to perform well in projects, perhaps in the form of grade descriptors, is provided to students [*Paragraph 3.3.11*].

For the attention of: **Head of Discipline**

Curriculum Design, Development and Content

Recommendation 9

The Panel **recommends** that EEE consider the request by undergraduate students to assess the viability of moving the choice between a language or a design project from Year 4 to Year 2, as students believed it was rather detached from the rest of the Year 4 curriculum [*Paragraph 3.4.8*].

For the attention of: **Head of Discipline**

Recommendation 10

The Panel **recommends** that EEE assesses the viability of extending Data Acquisition for Music Processing 3 into a 20 credit course and discontinuing the existing additional 10 credit course which follows it [*Paragraph 3.4.9*].

For the attention of: **Head of Discipline**

Recommendation 11

The Panel **recommends** that discussions take place between the Head of Discipline (EEE) and the Head of the Business School with a view to identifying ways in which integration of the two subjects could be improved, and thereby enhance the experience of students on the MSc Electronics and Electrical Engineering with Business [*Paragraph 3.4.11*].

For the attention of: **Head of Discipline; Head of Business School**

Recommendation 12

The Panel **recommends** that training on cleanroom procedures should be provided to all relevant students as early as possible in their degrees [*Paragraph 3.4.12*].

For the attention of: **Head of Discipline**

Student Recruitment

Recommendation 13

The Panel **recommends** that EEE investigate the possibility of making the postgraduate induction session more closely tailored to the needs of engineering students [*Paragraph 3.5.10*].

For the attention of: **Head of Discipline**

Student Progression, Retention and Support

Recommendation 14

The Panel **recommends** that the Subject Area consider the possibility of implementing support mechanisms for those students who are unavoidably delayed

in joining their programme. Additionally, student expectations should be managed more effectively, giving clear indications of expected timescales for feedback provision and how delays will be handled [Paragraph 3.6.8].

For the attention of: **Head of Discipline**

Recommendation 15

The Panel **recommends** that efforts be made to foster a sense of belonging amongst the postgraduate students. This might include meetings with senior members of staff, one-to-one meetings, or inclusion in social events currently only provided for undergraduate students. Focus groups could also be arranged by the Learning and Teaching Centre in order to ascertain the precise nature of student dissatisfaction [Paragraph 3.6.8].

For the attention of: **Head of Discipline**

Recommendation 16

The Panel **recommends** that the tutorial group structure be communicated clearly to all concerned, in order to facilitate support for all students in tutorial groups [Paragraph 3.6.10].

For the attention of: **Head of Discipline**

Resources for Learning and Teaching

Recommendation 17

The Panel **recommends** that EEE ensures all GTAs receive the training required by Senate regulations [Paragraph 3.8.6].

For the attention of: **Head of Discipline**

Recommendation 18

The Panel **recommends** that EEE devise, and adhere to, a systematic means of communicating to GTAs the progress of student groups through the course material, in order to ensure that the GTAs have sufficient time to prepare laboratory and tutorial materials that match students' progress through the course [Paragraph 3.8.7].

For the attention of: **Head of Discipline**

Recommendation 19

The Panel **recommends** that the College of Science and Engineering give careful consideration to the issue of updating essential teaching equipment, given the detrimental effect of not doing so on current students and on recruitment [Paragraph 3.8.8].

For the attention of: **Head of College of Science and Engineering**

Recommendation 20

The Panel **recommends** that the School, the College, and Estates and Buildings work together to identify suitable social/study space and make it available as soon as is practically achievable [Paragraph 3.8.11].

For the attention of: **Head of College, Head of Discipline,
Head of Estates & Buildings**

Assuring and Enhancing the Quality of the Students' Learning Experience

Recommendation 21

The Panel **recommends** that EEE, in communication with Registry, ensures that all grades from ERASMUS institutions appear on students' Websurf/Campus Solutions records in order to provide students with a comprehensive record of their studies [Paragraph 5.4].

For the attention of: **Head of Discipline; Head of Registry**

Recommendation 22

The Panel **recommends** that, in order to improve engagement (particularly amongst postgraduate students) with the Staff/Student Liaison Committee, clear information about the meeting dates, representatives and actions taken be posted prominently on Moodle (or other widely viewed page), with a link emailed to students [Paragraph 5.6].

For the attention of: **Head of Discipline**

Recommendation 23

The Panel **recommends** that EEE give consideration to arranging a careers session where postgraduate students can hear about the employment gained by previous students, to give them a better idea of the type of careers they could expect on graduation [Paragraph 5.10].

For the attention of: **Head of Discipline**