

## UNIVERSITY OF GLASGOW

### Academic Standards Committee - Friday 20 November 2009

#### **Departmental Programmes of Teaching, Learning and Assessment: Responses to the Recommendations Arising from the Review of the Department of Computing Science held on 7 March 2008**

Mrs Marjory Wright, Clerk to the Review Panel

#### *Conclusions and recommendations*

##### **Conclusions**

The Review Panel **commends** the Department on the quality of the overall student experience and on its outstanding performance in the 2007 National Student Survey in relation to overall student satisfaction and intellectual challenge. The Panel was pleased to note the strong collegiate support within the Department and the staff's satisfaction with the leadership skills of the Head of Department. The Panel also **commends** the Department's proactive links with industry which have significant benefits for students in terms of the overall student experience and expectations for employment.

The Department clearly has considerable strengths and a strong reputation amongst peer institutions and there are a number of distinctive features in its undergraduate curricula that could have a positive effect on recruitment if channelled effectively. The Review Panel was impressed with the Department's strategic involvement with schools to improve young people's awareness and understanding of Computing Science, with a view to enhancing recruitment in the longer term, but believes that there is work to be done in the shorter term to promote the distinctive features that the Department can offer to applicants and to dispel the mismatch between the reality of job expectations for computing scientists and the outdated perceptions of school pupils and their parents.

Students drew attention to their poor understanding of the Faculty entry system prior to commencing University and their gradual recognition of the advantages in its flexibility. The External Subject Specialist had also found this challenging and had likewise found it challenging to understand the nuances of the Scottish University system, particularly in relation to what was meant by "final year" since this could mean different things, depending on the nature of the curriculum followed by an individual student. The Panel therefore **recommends** that a brief explanation of the Scottish University system and the Faculty entry system be provided routinely to external Panel members involved in the Review of Departmental Programmes of Teaching, Learning and Assessment, and made available for departmental use for the purposes of external accreditation.

##### **Recommendations**

The recommendations interspersed in the preceding report are summarised below. It is important to note that the majority of these recommendations refer to tasks or

issues identified by the Department for action either prior to the Review or in the SER. Some of these actions are already in hand.

The recommendations have been cross-referenced to the paragraphs in the text of the report to which they refer and are ranked in order of priority.

#### *Recommendation 1*

The Review Panel noted that the Department intended to review and modify its programme and course intended learning outcomes (ILOs) to address identified weaknesses and **recommends** that it seek the advice of colleagues in the Learning and Teaching Centre on effective ways of re-mapping them against the relevant benchmarks, with a view to achieving clearer differentiation between degree programmes and demonstrating progression between the different levels of learning. [Paragraph 4.2.2]

For the attention of: **The Head of Department**

#### **Response:**

The Department is still struggling with defining ILOs – the Science Programme Approval Group recently criticised the ILOs for a new degree programme we proposed (BSc Hons in Mobile Software Engineering), which were based on existing ILOs. We are seeking clarification from this Group, as the feedback we were given recently appears to contradict advice we were given last year about our ILOs. It appears that other degree programmes in Science received similar criticisms of their ILOs, so there may be a need for some concerted action.

#### *Recommendation 2*

The Review Panel **recommends** that, whilst reviewing programme and course ILOs, the Department also takes the opportunity to map its assessment methods more explicitly to the individual courses and update programme and course documentation accordingly. [Paragraph 4.3.2]

For the attention of: **The Head of Department**

#### **Response:**

The Department have not undertaken this mapping exercise yet as we still need to clearly define the ILOs (recommendation 1).

#### *Recommendation 3*

The Review Panel **recommends** that the Department consider modifying the taught postgraduate assessment requirements in Semester 1 to include either more modest methods of assessment or fewer assessments with a faster turnaround time, to take account of the steep learning curve for those who have not previously studied in the UK. [Paragraph 4.3.4]

For the attention of: **The Head of Department**

#### **Response:**

The Department has introduced an induction week for MRes and MSc CS students to give them the opportunity to assess their current knowledge against the

Department's expectations, particularly with regard to programming skills. At the beginning of the 2008-09 year, this led to a few students realising that they had enrolled for the wrong degree programme and that the MSc IT programme would be more appropriate for them. The early weeks of the MSc IT programme already include a number of modest assessments to give students rapid feedback. Both the MRes and MSc CS programmes include readings courses that provide weekly feedback on written work, which has a low assessment weighting.

**Update November 2009:**

Feedback is given in less than one week for the early exercises in the MSc IT programme. The induction week process again proved successful in enabling students to assess themselves against the level of background knowledge we expect.

*Recommendation 4*

The Review Panel **recommends** the Department to review its marketing and recruitment strategy with a view to ensuring that the undoubted and highly competitive strengths of the Department be given prominence in materials, messages and promotional activities. *[Paragraph 4.5.1]*

For the attention of: **The Head of Department**

**Response:**

We have reviewed our marketing and recruitment strategy and endeavoured to highlight the strengths of the Department through the use of our Web site and promotional materials for Open Days, Applicant Information Days and our Applicant Information Evenings. We have liaised with RAPS to ensure that information about the Department goes out to all applicants to whom offers (unconditional or conditional) are made. We have had very good support from our Faculty and the Faculties of Science in producing high quality publicity material including Computing Science, notably the brochure aimed at attracting students from North America.

*Recommendation 5*

The Review Panel **recommends** that the University review its existing recruitment materials with a view to ensuring that they contain a clear explanation of the Faculty entry system and the benefits afforded to students by its flexibility. *[Paragraph 4.5.4]*

For the attention of: **The Director of the Recruitment, Admissions and Participation Service**

**Response:**

- University web pages have been reworked to emphasise flexibility of entry to Arts/Sciences or Social Sciences.
- Science at Glasgow leaflet (produced by Sciences Faculty Office) sent to schools and disseminated at Open Day.
- Corporate Communications has reworked Faculty materials in 2010 Prospectus.

- We stress flexibility, breadth and depth in schools, at fairs, and in written communications with schools – including materials provided by Computing Science.

#### *Recommendation 6*

Since the Faculties of Science have funded a Recruitment Officer for Science within the Recruitment, Admissions and Participation Service (RAPS), the Review Panel **recommends** that the Department of Computing Science explore with RAPS how it might make maximum use of this resource to promote its undergraduate programmes south of the border through showcasing their distinctive qualities alongside the flexibility of the Faculty entry system, and that it also explore ways of maintaining the momentum in future years. *[Paragraph 4.5.6]*

For the attention of: **The Head of Department**

#### **Response:**

The Department has worked close with Lily Phoon, the Recruitment Officer for Science, on the recruitment of students from south of the border and we have provided publicity material to RAPS for this purpose. We have also initiated an 'Ask a Student' system that allows applicants to contact a selected group of our current students and ask questions about our courses, the University, living in Glasgow, etc. Lily has provided valuable support for our applicant information sessions this year and these have attracted a number of visitors from south of the border. She has also been involved in general visits by individual applicants and school groups arranged by DCS throughout the year.

The 'Faster Route' initiative has provided us with another valuable marketing tool for applicants from England with good 'A' level results. The Faculty has supported us in producing an attractive flyer advertising this new three-year degree programme, which has been widely distributed through RAPS, including targeting of a large number of English schools. Of course, we hope that the Faster Route will also prove attractive to well-qualified overseas students and students from the EU and we are liaising with IPS to cover this market.

#### *Recommendation 7*

The Review Panel **recommends** the University to review its recruitment materials and the navigational routes through them to ensure that the merits of the Scottish Higher Education system are brought prominently to the attention of potential applicants. *[Paragraph 4.5.7]*

For the attention of: **The Director of the Recruitment, Admissions and Participation Service**

#### **Response:**

- The Prospectus has been updated.
- Discussions are on-going with Corporate Communications re website improvements.

### *Recommendation 8*

The Review Panel shared the view that creating opportunities to build social cohesion amongst Level 1 students could have a positive effect on retention and, for this reason, **recommends** that the Department give serious consideration to introducing group work into the first year of the Computing Science curriculum. [*Paragraph 4.6.2*]

For the attention of: **The Head of Department**

### **Joint Response:**

The Department has been working closely with the Faculty's Study Support Coordinator, Dr Lorna Love, to identify mechanisms to build social cohesion amongst Level 1 students and she has done valuable research this year to identify weaknesses in our current strategy and opportunities for improvement. The Faculty is planning an Extended Induction programme in 2009-10 and we will be contributing to that and aiming to build on this during the year by organising further academic activities involving all of the students. We are also planning to introduce more social activities aimed at first year students and to encourage our senior students to become more engaged with students in first and second year.

We have carefully considered the introduction of group work into the first year of Computing Science based on feedback from Dr Love's work. We already have some collaborative work within an early part of the CS-1Q course (the HCI component) and we are considering ways in which this might be extended into other components of this course. We plan to introduce some collaborative working into CS-1P next year. We are proposing to introduce code inspections as a way of showing that CS-1P is not just an introduction to programming. We need to demonstrate early in the course that you never program alone in a career in CS, so we would like to have some kind of exercise that requires a student's code to be understood by other students and encourage interaction. However, we need to ensure that the introduction of group working does not impact on the ability of weaker students to learn the fundamental concepts of the computing science, particularly in programming.

### *Recommendation 9*

The Review Panel **recommends** that the Department give consideration to setting aside a suitably sized section in one of the teaching laboratories in the Boyd Orr Building for the provision of a social space equipped with tables, chairs and vending machines for the use of students in the Department, with a view to enhancing opportunities for social interaction amongst students at all levels. [*Paragraph 4.8.14*]

For the attention of: **The Head of Department and the Dean of the Faculty of Information and Mathematical Sciences**

### **Joint Response:**

We agree that provision of some form of social space for students would be desirable but we do not believe that we can sacrifice teaching laboratory space for this purpose. The third-year teaching laboratory (BO 720) is set up so that we have one machine per student for afternoon workshops associated with our level-3 courses. Any significant reduction in the number of machines would result in the need to schedule two shorter workshop sessions per afternoon, which would reduce the supervised teaching time per student and give students less opportunity to do the

work for the course. First and second year students currently share the other large teaching laboratory (BO 715). In 2008-09 we needed to run five supervised laboratory sessions in parallel at peak times in the afternoons, leaving very little spare capacity for other students to work on their own in the laboratory. The pressure on laboratory space in the afternoons is caused by the timetabling of lectures, which are concentrated in the mornings in the Faculties of Science, meaning that few students are free for morning laboratory sessions. Our other concern about this recommendation is that we have always enforced a strict “no eating or drinking” policy in our laboratories and setting aside part of a laboratory as suggested would make this very difficult to maintain.

We have identified a small room (BO718) situated between our two main laboratories that we could allocate for social use by students, following some re-organisation of space. Ideally we would like to provide a larger space but there is no other space available close to our laboratories since we gave up a large teaching laboratory and adjoining tutorial room on level-7 of the Boyd-Orr building. We recently investigated the cost of installing a vending machine in the Sir Alwyn Williams building and decided it was not viable. We are not convinced that the installation of vending machines on Boyd-Orr level 7 would be cost effective. There are three vending machines on Boyd-Orr level 2 adjacent to the Café Piccolo (hot drinks, cold drinks and snacks) and it would be helpful to liaise with the University Hospitality Services to consider whether installing additional vending machines in Boyd-Orr would be sensible.

#### *Recommendation 10*

The Review Panel learned that the Head of Department planned to reinstate a workload model and **recommends** that the development of the model be informed by current Faculty practice. [Paragraph 4.8.1]

For the attention of: **The Head of Department**

#### **Response:**

The creation of a new workload model has been discussed by the Academic Staff of the Department but so far we have been unable to reach a consensus. We have looked at the workload model used by the Mathematics Department, which is a points based system, with a number of points allocated to each Departmental activity reflecting the effort associated with each task. Computing Science operated such a scheme for allocating teaching duties, including PhD supervision, for a number of years but it was eventually discontinued because it did not solve the load-balancing problem. (It clearly identified the imbalance in teaching loads but some people just accumulated lots of points!)

One problem with the allocation of teaching duties in Computing Science is the allocation of final-year undergraduate and MSc project supervisors. Fourth-year projects are allocated at the beginning of the final year and students can express their preferences for projects from a list of suggestions or suggest their own project topics, provided that there is a supervisor willing to supervise the project. Recently, we have constrained the number of projects an individual supervisor should supervise. However, some supervisor's projects are always more popular than others and tightly constraining the allocation to spread the load evenly would reduce student satisfaction. MSc projects are not allocated until near the end of the first semester and a similar process is followed in allocating these. The added problem with MSc projects is that they run through the summer, which conflicts with research time for supervisors.

In our recent discussions the other hot topic has been time for research. Under the FEC model PIs are paid for a certain number of hours per week on UKRC funded projects. However, the question was how to build this information into a workload model? There was concern about whether under the present funding model we actually get the money to cover all of these staff costs; we do not receive the full FEC costs and there is also the question of the impact of our overall Departmental budget deficit. We have academic staff who work on EU funded projects, where there is no recoup for staff costs but these are at least as expensive in staff time as UKRC funded projects. Other staff pointed out that they do personal (unfunded) research and write high-quality papers – how should this be recognised?

#### *Recommendation 11*

Mindful of its concerns with regard to the availability of high-end computers for practical and project work in later years of the curriculum, the Panel **recommends** that the Director of IT Services and the Department, in conjunction with the Vice Principal (Strategy & Resources) and the Dean, should conduct an in-depth review of the impact of the University's computer replacement policies and the funding available for computer purchase in the Department on the practical experience of students and the external perception of the Department. *[Paragraph 4.8.11]*

For the attention of: **The Director of IT Services** and **The Head of Department**

In conjunction with: **The Vice Principal (Strategy & Resources)** and **The Dean of the Faculty of information and Mathematical Sciences**

#### **Response: Head of Department**

The impact on the Department of the current five-year equipment replacement cycle for teaching laboratories is two fold. If the equipment in our first year teaching laboratory is about to be replaced at the end of the five-year cycle then showing prospective students around the laboratories can be embarrassing – we have had comments in the past such as “we’ve got a better machine than this at home” and “I’ve just visited Strathclyde and they’ve got much better machines than you”. At the other end of the spectrum, machines that are four years old are not powerful enough to run the advanced software that our senior undergraduates and MSc students expect to use. The processor, memory and disc space demands of sophisticated software have increased rapidly and show no signs of slowing down. The Review Panel expressed concern about the absence of multi-core processors in the Honours laboratory (4.8.7). If we want to claim that we are providing ‘research-led teaching’ then we have to provide machines that are capable of running advanced software and give students the opportunity to use state-of-the-art equipment.

[After the DPTLA Review, and following further critical comments about our equipment from the IET Accreditation Panel, funds were made available by the Director of IT Services to re-equip the Department’s Level-3 and Level-4 teaching laboratories. This has solved the short-term problem but still does not address the problems caused by the five-year equipment replacement cycle.]

#### **Response: Vice Principal (Strategy and Resources)**

This action was led by the Director of IT. I am aware that the machines were replaced after the review but I am not sure that a systematic review of the overall rolling program for the labs was conducted.

**Comment: Dean**

One outcome from this DPTLA was that end-of-year funds were found from Sandy MacDonald's budget to completely replace both the Level-3 and Level-4 Computing Science labs. So that dealt with the issue in the short term. It did not address the longer-term issue that, while the computer lab replacement policy of centrally funding replacement of 5-year old machines makes sense generally, it does not make sense for subjects like Computing Science where the pace of software development and the consequent demands on hardware, make a shorter replacement cycle essential.

**Response: Director of IT Services**

During the current financial year 136 PC units have been ordered on behalf of FIMS as part of the annual replacement programme, 102 of these being allocated to Computing Science. The overall replacement policy of addressing only those units which are 5 years old has remained in place along with the overriding qualification that the units should be located in open access clusters or similar.

IT Services has not received a request to repeat last years variation to the above policy on behalf of Computing Science where the replacement of units in two labs was brought forward in time. The management of the replacement programme involves detailed planning with all Faculties and there are a number of Departments where demand for high end machines is similar to Computing Science. To date IT Services has been unable to identify a revised model which allows earlier replacement in all Faculties, where there is sufficient justification, for consideration by the Vice Principal (Strategy & Resources) and IPSC. The failure to produce a revised model is partly due to probable budget restrictions next year which would prevent any from of revised policy increasing overall spend.

Until such times as the budget outlook improves, the ability to offer earlier replacement will be driven by additional budget becoming available and we seem to have no other option but to continue as is, and if by chance additional funding becomes available each case would be treated as a one off and on its own merits.

R. Fraser (Director of Finance) has been consulted on this subject and probable budget availability next year.

*Recommendation 12*

The Review Panel **recommends** that the Department review the advice that it provides to students on what constitutes plagiarism in relation to programming and software development and incorporate, where appropriate, specific examples to assist students' understanding of the concept. *[Paragraph 5.3]*

For the attention of: **The Head of Department**

**Response:**

The Department has reviewed the advice on what constitutes plagiarism in relation to programming and software development and we feel it would be very difficult to incorporate more specific examples, such as pieces of code, in a general set of guidelines. However, we do acknowledge that we need to bring the advice more clearly to the attention of students in those courses focussing on software



development and relate the guidelines to the specific content of each course using appropriate examples.

#### *Recommendation 13*

The Review Panel **recommends** that, in the course of its scheduled review of the generic regulation for taught postgraduate programmes, the Academic Regulations Sub Committee explore with the Department of Computing Science the concerns identified in Annual Monitoring Reports regarding the criteria for the award of Distinction. *[Paragraph 5.6]*

For the attention of: **The Convener of the Academic Regulations Sub-Committee**

#### **Response:**

The current consultation process on the review of the Generic PGT Regulations and on the review of Compensation has given the Department adequate opportunity to express their concerns: the MSc team sent responses to both consultation documents to the Faculty and to the Science Faculties Support Unit, in which they highlighted their concerns about the current progression and distinction regulations.

A further meeting was held with Professor David Watt to discuss compensation, following from which changes have been made to the PGT regulation which were approved at the April meeting of Senate.

#### *Recommendation 14*

The Review Panel **recommends** that the Department liaise with its named contact in the Learning and Teaching Centre with a view to seeking advice on mapping its existing PDP opportunities across the entire curriculum. *[Paragraph 4.6.4]*

For the attention of: **The Head of Department**

#### **Response:**

The Head of Department has failed to take action on this recommendation. It appears to have been overlooked when the HoD drew up the list of actions requiring attention by the Department.

#### **Update November 2009:**

We have not carried out a mapping exercise. However, we have continued to develop PDP, with a special focus on first-year students, see attached report, *PDP in Level 1 Computing Science* (Appendix 1). PDP has also been strengthened in level 3, where the Professional Software Development course is now making use of Mahara blogs for students to record their progress and personal evaluations on a weekly basis. This material will then feed into their individual evaluations at the end of each semester.

#### *Recommendation 15*

The Review Panel **recommends** that the University investigate the following with a view to providing the necessary information to assist the Department with the development of a realistic strategy for providing and maintaining appropriate IT equipment facilities to allow it to compete on equal terms with its competitors in attracting high calibre applicants to its programmes:

- (i) Whether there are potential safety implications in permitting students to utilise personal laptops in laboratories and classrooms and, if so, how these might be overcome; *[Paragraph 4.8.8]*

For the attention of: **The University Safety Officer**

**Response:**

The implications of laptops in laboratories fall into the following categories:

1. Electrical Testing (PAT)- This would obtain if the equipment was supplied by the Department. They would then need to ensure that a testing regime was in place. If personally owned equipment is allowed into the laboratory the Department would have to satisfy themselves equipment was compliant, normally by a visual inspection rather than by a physical test [which may in itself be damaging to some device]
2. Fire – Laptops have been known to catch fire, but this is very unusual and is mainly the result of a manufacturing fault of the battery. Using laptops in areas where significant amounts of flammable material (in technical terms, above the lower flammable limit of the substance in question) are present would not be good practice. In practice, this might be encountered following a spill of a substantial quantity of flammable solvent or similar material, but even then, fire or explosion is unlikely.
3. Cross contamination – This is probably more a biosafety concern but SEPS would expect Departments undertaking laboratory activities with such potential risks to have controls in place to ensure items taken in or removed from such laboratories would pose no threat to the wider community. No laptops should be taken in or out of a CL-3 suite as they would need to be subject to a fumigation process, which would probably severely compromise their continued functionality. Similarly, using laptops on bench surfaces where significant amounts of corrosive substances are used or stored would at least damage the casing of a laptop if a spillage occurred.
4. Ergonomics – The well-being of the user may be compromised if continual use of this type of equipment is sanctioned and the operator may develop postural strain.

Generally, we believe that a designated laboratory bench area, free from hazardous substances, where laptops could be used on occasions would seem the best practice. This is known to be the procedure followed by other institutions.

I am not especially qualified to determine the costs of a thorough-going PAT testing regime for all laptop users. Current rates for an outside consultant to validate the electrical safety of any simple device is approximately £1.50 per item. As the number of items increases, so the individual rate decreases.

- (ii) The individual fee incurred in portable appliance testing (PAT) and the estimated annual cost in terms of staffing resources to deliver the required PAT service to permit widespread use of personal laptops by students in Computing Science laboratories. *[Paragraph 4.8.8]*

For the attention of: **The Director of IT Services**

**Response:**

The IT Services Help Desk located in the Library offers assistance to all Students in order to gain access from personal laptops to the Campus Network and central supported services / systems. Given the specialist nature of Computing Science laboratories and the lack of involvement of IT Services staff in managing and supporting Computing Science IT activities, it would not be easy to offer a PAT

service specific to Computing Science, given the lack of knowledge of Computing Science activities and available IT Services resources. IT Services is therefore not able to offer a PAT service to Computing Science or to comment on the possible cost of such a service. Should, however, Computing Science wish to review how the Department and IT Services work together new opportunities may result.

*Recommendation 16*

The Review Panel **recommends** the University to ensure that its current review of teaching spaces gives due consideration to the specialist technical needs of certain departments and that the central room booking system is upgraded, in due course, to ensure that a course's technical needs can be better matched to the available provision. *[Paragraph 4.8.10]*

For the attention of: **The Vice Principal (Learning, Teaching and Internationalisation)** and **The Director of Estates and Buildings**

**Joint Response:**

The CRB software (CMIS Facility) holds details of the AV/IT facilities in each centrally managed teaching space (and which also appears on the CRB website), and the software matches technical requirements advised to suitable available space as part of the booking process. Final booking allocations do however on occasion need to take account of other factors e.g. class sizes, to ensure overall best fit of teaching space to requirements. Departments are annually asked to ensure that their AV/IT technical requirements are fully advised as part of their teaching space requests submitted by May each year, though some departments do not always provide that level of detail by the deadline and which can then make it difficult to fully meet requirements. CRB are also currently liaising further with AV/ IT Services to seek most efficient mechanism to ensue that the CRB system get updates as early as possible for any changes in AV/IT equipment provision from year to year.

*Recommendation 17*

The Review Panel **recommends** that a brief explanation of the Scottish University system and the Faculty entry system be provided routinely to external Panel members involved in the Review of Departmental Programmes of Teaching, Learning and Assessment, and made available for departmental use for the purposes of external accreditation. *[Conclusions]*

For the attention of: **The Director of the Senate Office**

**Response:**

This has been implemented.