

This proforma should be used to collate information from School Annual Monitoring Summaries.

The aims of Annual Monitoring are to maintain quality and improve provision encourage reflection. The form is designed to capture a **reflective summary** of annual monitoring activity at school and subject level. Bullet list format is encouraged.

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| College | Science and Engineering |
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Reflection

Comment on what is working well? What needs work?

NSS

Across the College, overall satisfaction as measured by Q22 in the NSS rose by 3.5% to 91.7%. This rise can be attributed to large increases in the levels of satisfaction in Mathematics and Statistics, Civil Engineering and Aerospace Engineering. Of particular note, Geology achieved 100% satisfaction. However, NSS scores for the academic disciplines within the College fall into two broad camps:

- Computer Science, Electronics and Electrical Engineering, Geology, Human and Social Geography, Mathematics and Statistics, Physical Geography and Environmental Science, Physics and Astronomy, and Psychology all have results in the mid to high 90s% e.g. Computing Science came first among the Computing departments in the Russell Group with an overall satisfaction of 97%.
- Although satisfaction has increased markedly in both Aerospace and Civil Engineering, they are in a group clustered around 80% satisfaction for Q22 along with Chemistry and Mechanical Engineering.

Since we believe that the response to Q22 depends primarily on students' cumulative experience of the university, there are serious concerns that current difficulties with teaching space allocation and infrastructure may lower future scores. Several scores in the category "I have received sufficient advice and support with my studies" declined although staff were unaware of any changes in provision. There was concern that this may reflect a combination of MyCampus and reluctant staff who had been pressed into service as advisers in the 'new' advising system.

Works well:

Maths

Staff-student committees and course questionnaires work well. Early/mid-term questionnaires provide feedback which enables prompt action. Regular assessments e.g. WebAssign increases student engagement.

Physics and Astronomy

The School reported that student and staff feedback indicated general contentment with courses. As such, results are in line with previous years. Educationally, practices such as the employment of continuous assessment tasks; inverted classroom technique; small-group tutorials; and personalised feedback have worked well across the board. The student societies are well-integrated within the School. This has led to enhanced student interaction across the different courses.

Engineering

The School continues to lead in the delivery of international programmes. This year saw expansion into China, with the roll-out of the Electronic and Electrical Engineering programme at UESTC. The School Teaching Office continues to offer excellent support for both home and overseas activities. Staff at UESTC and GU have worked to ensure that implementation and policy issues can be resolved at an early stage. Regular staff and SSLC meetings have been instituted.

In Singapore, the relationship with SIT is well established in both Aerospace and Mechanical programmes - 4 in total.

Visits to SIT by lecturers from GU are highly valued and the Overseas Immersion Programme, in which the SIT students carry out a team project in Glasgow during the summer, is a notable highlight.

At GU, the School rolled out the new common curriculum in year 1, requiring split lecture theatres and shared teaching arrangements for the larger classes. This generally worked well.

What needs work:

Computing

The first cohort of University of Glasgow Singapore (UGS) students who completed Level 3 did relatively poorly compared with the GU cohort - the top UGS student obtained a C1 overall. It is clear that the quality of the students recruited into the Singapore-based programme was weak and that they struggled with assessments which test problem solving ability rather than simple recall. This is an ongoing challenge, especially in light of external examiner comments suggesting an increase in the amount of such material in third year assessments in Glasgow.

The Periodic Subject Review panel expressed concerns that the school may be over-assessing its students in some areas.

Lab space is at a premium. With the increase in student numbers, many classes have had to be split into more sections. Obviously this has led to an increase in contact hours for staff.

Psychology

This year the number of students in the first year class was 650. The School had no control over enrolment under MyCampus. However, registration procedures on My Campus have been changed for 2014-15. This should allow the School some measure of control without adversely affecting the student experience. This large class required the use of an overflow room. The quality of the Echo 360 link was very high and a small group of students expressed a preference for this room because visibility was considered better than in the large lecture theatre. However, overflow rooms should be in the same building so that a first-come-first-served policy can be adopted which students would consider fairer and would be easier for staff to manage.

Good Practice

Comment on innovation? What practices should be recommended?

In Physics, the use of scannable answer sheets instead of traditional script books for some class tests and degree exams in the large classes of the earlier years has moved some administration from academic staff to support staff. This has enabled the electronic return of marked scripts directly to students, providing feedback on class tests more quickly than in the past.

A group of new lecturers in Chemistry are running informal "meet the lecturer" sessions for students to drop in and discuss chemistry, careers and problems.

In Computing, software systems have been developed to reduce admin e.g.

- the Learning and Teaching Committee portal handles many aspects of teaching administration, automating processes that were previously handled manually by teaching admin staff or by academic staff;
- the School's project management system allows students to be allocated to projects using optimal matching algorithms, and also allows staff to record their marks and detailed comments when assessing projects.

Engineering

- Successful implementation of the electronic marking process for components of the assessment in selected common curriculum courses in the revised first year;

- Aerospace use 4th year MEng students as project managers for 2nd year Design Project groups;
- A number of staff across the School have produced video lectures which students can access at any time, while lecture slots provide opportunities for students to receive feedback and support.

Maths reported a number of areas of good practice:

- multiple choice questions are now used in level 1 mathematics assessment. This enables testing a wider range of ILOs and reduces marking burden;
- use of scanning systems for homework and web-based formative/summative assessment leading to rapid turnaround times for homework feedback across the school;
- level 5 Maths project presentations and posters have been introduced this year and this worked well;
- maintenance of varieties of style in lecture, tutorial and practical work in Statistics.

This year, Psychology introduced a student conference at which students presented talks or posters based on their dissertation (maxi) projects. This level 4 maxi/dissertation conference was run like a professional conference and was well received by students and the large number of staff who were involved. This enhanced the central focus of employability and further developed skills introduced in the level 3 professional skills course.

Students have the opportunity to develop their research skills by applying for summer research posts with staff members. There were a significant number of students obtaining vacation scholarship funding.

Improvement Plans

What actions are being taken forward?

Computing Science

The School has responded to problems encountered by the first year of delivery of their degree programme in UGS (University of Glasgow Singapore):

- staff are teaching more pre-sessional bridging courses at UGS in order to prepare students better for entry, which is at Level 3;
- more staff are being recruited at UGS to help with the delivery of courses and the supervision of projects;
- a review of recruitment onto the Singapore programme is being conducted;
- in light of initial experiences, course coordinators in Glasgow are also reviewing teaching for courses which run concurrently in Singapore.

In response to concerns about over-assessment raised by the PSR panel, students were surveyed on their entire experience of assessed coursework, to gain a picture of where the school was over-assessing students. This data was analysed and discussed at the School's Learning and Teaching Committee. After the results of the questionnaires were collated and summarised, changes were made.

Engineering

- All Disciplines are affected to some degree by the plans to extend the common curriculum into year 2 during 2014-15 e.g. Civil Engineering will introduce 40 new credits associated with this initiative.
- Following completion of the first year of the UESTC collaboration, a number of areas of improvement have been identified, including: formation of a Planning Committee to focus on the needs of this Joint Educational Programme such as opportunities for remedial English language provision; closer coordination of policies and procedures with GU; reviewing the scheduling of Exam Boards and Progress Boards.
- Plans associated with the joint provision with SIT include: encouraging more GU staff involved in shared provision to visit Singapore; reviewing the possibilities for common teaching for some elements across programmes at SIT.

- Aerospace plans include: offering more final year options to students; undertaking a comprehensive review of design provision in response to a recognition by staff and students of shortcomings in this key element of the curriculum; extending lab provision to a wider set of courses across the programmes, for which equipment has been purchased.
- Civil Engineering plans include: reshaping the construction management theme following the retirement of a key member of staff; securing closer harmonisation of the final year MEng project with the rest of the School; expanding the optional courses available to students in years 4 and 5.
- Electronics and Electrical are in the final stages of revamping the teaching of microcontrollers throughout their degree programmes.
- Mechanical Engineering plans include: increasing final year options, e.g. an MSc course in Energy from Waste; rationalising management courses across programmes; increasing the fluids provision to MDE and PDE programmes.

Chemistry

We are setting up an Employment Moodle site accessible to all our students (undergraduate and postgraduate). The aim is to place advertisements for internships and summer placements and to make available general employability information e.g. links to prospects, CV writing, preparing for interviews and careers websites.

Maths

- use of continuous assessment in place of class tests in year 1;
- further use of assessment practices (e.g. multiple choice) to reduce marking loads;
- development of school wide feedback on exam statistics to students by School Learning and Teaching Committee;
- maximising tutorial contact by combining tutorials subject to physical and time-tabling constraints.

Closing Loops

Comment on progress made on actions identified in last annual monitoring cycle

Physics

Matters wholly within the control of staff within the School of Physics and Astronomy have been addressed and implemented e.g. the appointment of a technician dedicated to the second year labs has smoothed their running. Unfortunately, staff are frustrated by the remaining (apparently) intractable logistical and administrative issues (MyCampus, room allocation and room maintenance) which are outwith the control of the school.

Computing

The level 1 labs have been completely refurbished with new equipment which enable innovative approaches to teaching.

Students reported concerns over the condition of the Level 4 lab. In response, a £70k refurbishment of this space was carried out over the summer.

Problems with the air conditioning in the Boyd Orr 720 lab have been highlighted for the last few years, but have still not been tackled.

Engineering

Problems associated with the operation of MyCampus continue to have a detrimental impact on the quality of the student experience across the School, as well as on key staff such as administrators and advisers of studies.

Rooms 427A and B within the James Watt building continue to have problems with disabled access.

Lecture rooms with larger capacity (300+) would be desirable to avoid duplication of lectures for the new common courses in engineering.

The policy on preponderance has been widely criticised by staff and external examiners alike, and should be reviewed urgently. Policy was reviewed by ASC and retained with minor modifications to the definition of preponderance.

There is support within Engineering for enabling schools to approve administrative changes to courses and programmes to avoid delays in providing students with up-to-date information. College have responded with a simplified procedure.

Maths

- Web-based and written continuous assessments are in use at level 2 giving increased feedback to students.
- Homework scheduling has been implemented and early or mid-term questionnaires introduced.

What matters (if any) need to be brought to the College or University's attention?

College

Chemistry

Members of academic staff are continuing to bear the brunt of administrative duties e.g. collating and formatting exam papers, inputting information into MyCampus, monitoring class lists. This reduces the time they can devote for their teaching and research activities. The School of Chemistry was promised a teaching administrator several years ago which would have a huge beneficial impact.

Computing

The Boyd Orr 720 computer lab has inadequate air conditioning and insufficient space (72 machines, for ~100 students).

Engineering:

- improve staff development opportunities at UGS;
- increase flexibility to invest UGS profits in support of local developments e.g. infrastructure, staff, studentships;
- apply for *Council for Private Education* accreditation in Singapore to enable recruitment of non-Singaporean students for PhD studentships and GU programmes;
- mathematically intensive courses continue to affect progression of engineering students.

GES

Continuing increases in administrative workloads for research and teaching staff as a result of devolving college/university level administrative tasks to schools without adequate resourcing is reducing the available time of staff to devote to the delivery of the core teaching components. This highlights the need for a dedicated teaching administrator based within the School

Maths

Insufficient staffing (high student-staff ratios) and high admin loads impact on teaching provision and standards of feedback.

Psychology

In level 1 on-line resources developed by the course textbook publishers for formative assessment are used. These resources are excellent, far better than we could develop in-house, and are extremely popular with students. Currently, the course tutor has negotiated free access for all students and this will be extended for one final year, 2014-15. The College could consider making funding available to support the acquisition of these types of resources which appear to enhance greatly student satisfaction.

Room bookings remain a serious problem for the school. Course tutors strongly believe that there should be consistency in lecture room location – this would benefit both staff and students. A current proposal for level 2 involves 4 different lecture rooms spread across the campus, which are different each day of the week. This is unacceptable. It places increased pressure on lecturers and results in disgruntled students.

University

Computing

An additional member of administrative staff for the Teaching Office is badly needed.

Physics and Astronomy

The following comments have all been made in previous SAMS.

- MyCampus continues to be problematic at all levels and causes extra (often unnecessary) work for all staff

and inconvenience to our students, who are internet savvy and view it with a mixture of disbelief and disdain.

- Administration levels continue to be extremely high and the employment of a dedicated teaching administrator would ease this burden on staff, allowing them time to prepare and teach more effectively.
- Staff resources are stretched with all courses understaffed due to large and sustained increase in student numbers without increase in staff levels. All staff report high levels of workload, taking on extra small-group tutorials and lab teaching in order to keep staff-student ratios at appropriate levels. Staff report that this problem is worsening.
- Due to increased student numbers, suitable accommodation is difficult to come by. Many staff report difficulties in obtaining suitable exam accommodation for class tests during the semester. Timetabling of lecture accommodation by CTT has been particularly problematic this year for many class heads, with year-long classes allocated different rooms in different buildings across campus on a daily basis. Feedback from class heads to CTT staff often appears to be ignored. In particular, the provision of in-house accommodation allows staff to carry out lecture demonstrations and foster student-staff communication. Again staff report that this problem is worsening.
- Refurbishment and, more importantly, ongoing maintenance of accommodation also presents a problem. There is a lack of suitable small-group teaching spaces within the Kelvin Building - increased student numbers again. Severe heating problems occur in winter in lecture theatre 222 in the Kelvin Building, often bringing the room temperature below legal working minimum. This long-known problem has not been fixed by Estates and Buildings. The promised refurbishment of the Observatory seems to have stalled over the last 10 years.

Chemistry

- Provision of exam halls for class tests during lecture times.
- Better provision of small teaching rooms for tutorials.

Engineering

- Some lecture rooms are still poorly equipped for Engineering courses. The minimum requirement is at least one roller board and the capability for AV projection simultaneously without obscuring the board.
- Application of new discretion rules for final degree classifications continues to cause concern among academic staff and external examiners.
- Increasing the number of large lecture rooms (+300) should be a high priority to avoid repeat lectures, which have become more prevalent as a result of the common curriculum in Engineering

GES

MyCampus system continues to be cumbersome and inaccurate. Student timetables were not accurate for some courses. Specific laboratory sessions were missing and/or venues changed at short notice without informing the teaching staff of those changes).

Central room allocation should be done more sympathetically to the requirements of students and staff, within a single course, lectures are frequently timetabled to occur in rooms at one end of the Campus to be followed directly by a laboratory at the other end of the Campus.

Maths

- Appropriate teaching space is still required with good **BLACK**boards.
- Consistent and effective room provision and booking procedures.

The common themes are MyCampus and admin support, large lecture theatres and small lecture/tutorial rooms, the equipment therein and room bookings.

Hot Topics

Do you have any comments on the following topics?

How would you like to see the VLE (moodle or other) develop to enhance the delivery of your courses?

Computing

- The Moodle VLE is unnecessarily difficult to use. It is configured in a way that highlights rarely used features, while making common tasks hard to find; it offers too much unnecessary flexibility. In this regard, it mirrors MyCampus, where the simplest and most common tasks take dozens of clicks, while features that are rarely used are trivial to activate. Staff could make better use of the tool were it configured to support their teaching.
- Automatic upgrades of Moodle are often detrimental to the appearance of course web pages. The latest update over the summer produced fonts that are faint and difficult to read, and deleted all the titles from individual web pages. This led to extra work going through each web page reinstating the titles.

Several schools complained about the slowness of Moodle-2 although others were happy with the change. The integration of Turnitin into the Moodle system caused problems this year and staff requested that this be addressed centrally.

Engineering

- Access problems have been encountered with Moodle at UESTC required a shift to using *Blackboard*. This should be fixed before students enter Year 3, when GU staff become involved with the delivery of the programme. Preparation of students at SIT would be enhanced by pre-sessional provision of online mathematics and physics support.
- Recording of lectures has seen some growth in the School, at both GU and SIT. Opportunities to expand this activity should be promoted.
- Loss of interface to Turnitin in Moodle 2 has been a retrograde step.

Chemistry

It would be beneficial if it was made it easier to arrange for visiting students and guests to be given permission to access to Moodle.

Psychology

Echo 360 – we would like to provide both video of lectures but also separate podcasts which students can download. We currently post our own podcasts but this could be more efficiently done using this system. However we have no guarantee that we will get a lecture hall with this facility – the system needs to be rolled out further across campus so we can advertise this service to our students.

Was student attendance at your courses maintained at an acceptable level throughout the year? If not, what strategies would you employ to improve attendance?

Engineering

- Poor attendance was an issue at UESTC and raised at the joint Exam Board. Of particular concern was Oral English, the attendance for which has now been incorporated into the requirements for successful completion of the course. Consideration is also being given to introducing the optical scanner system used at GU to monitor attendance
- Attendance on courses across the School is a cause for concern. To some degree, this is undoubtedly due to the availability of electronic course materials via Moodle or otherwise. Automatic attendance monitoring, via portable readers should be able to address this problem, although it is unlikely that attendance at lectures could be made a compulsory part of the summative assessment.

Typical attendance levels of about 65% were mentioned by a number of schools.

Are there any other topics you wish to comment on?

Maths

- Lack of feedback from management on the issues raised in these forms and the College/School summary.

Thematic Summary

Workload

Increased workload which stems from a variety of causes including:

- the extra admin load caused by MyCampus and the 'new' advising system;
- sustained increases in student numbers e.g. Computing, GES, Physics;
- TNE initiatives e.g. Computing and Engineering, which also erode 'quality research time' over the summer period.

Previous CAMS suggested additional school or subject based admin support as a lateral solution to the problems caused by MyCampus and the Burrows Advising System. This extra support has not materialised.

Accommodation

Shortage of suitably sized lecture, tutorial and lab accommodation is a problem which the Western site may alleviate in the future. Video linking of lecture rooms and video recording are possible stop-gap solutions. At least in the short term, it would be prudent for programme and course approval groups to query the necessity for new, large classes.

Some schools e.g. Computing and Engineering have been asked by their externals to incorporate more problem-based questions into their exams, particularly at levels 3, 4 and 5. The University policy which stipulates a maximum duration of exam may help the shortage of exam halls but it mitigates against our needs.

Staff continue to express frustration that their wishes are often ignored in refurbishments.

Academic Procedures

Preponderance and 0-22 scale of the Code of Assessment continue to be unpopular among staff and externals for academic disciplines within Science and Engineering. Unfortunately (for the University) both of these systems have numerical foibles. The 0-22 scale in particular seems incongruous and clunky compared with the decimal system. These objections will recur.

In the aftermath of the restructuring of the University, Engineering moved to a unified exam board covering all five disciplines. External examiners commented unfavourably on the unwieldy nature of this, which lessened their interaction with academic staff.