

The University of Leeds
EXTERNAL EXAMINER'S REPORT

ACADEMIC YEAR: 2016-17

Part A: General Information

Subject area and awards being examined

<i>Faculty / School of:</i>	Computing
<i>Subject(s):</i>	<i>Applied Computer Science MEng, BSc</i> <i>Computer Science MEng, BSc</i> <i>Computer Science (Digital & Technology Solutions) BSc</i> <i>Computer Science with Artificial Intelligence MEng, BSc</i> <i>Computer Science with High Performance Graphics and Games Engineering MEng, BSc</i> <i>Computer Science with Mathematics MSci, BSc</i> <i>Electronics and Computer Engineering MEng, BEng</i>
<i>Programme(s) / Module(s):</i>	Operating Systems Algorithms Intelligent Systems & Robotics Parallel Scientific Computing Functional Programming Data Science Knowledge Representation Machine Learning Numerical Computation Algorithms and Data Structures II Networks Graph Theory: Structure and Algorithms Cloud Computing
<i>Awards (e.g. BA/BSc/MSc etc):</i>	BSc and MEng

Part B: Comments for the Institution on the Examination Process and Standards

Points of innovation and/or good practice

Please highlight areas of innovation or good practice within the programmes or processes you have been involved with in this box.

I very much like the idea of plotting the students' performance in each exam against their average. This provides an elegant visual representation of the relative difficulty of each exam. We have used a similar mechanism at Imperial which yields a single adjusted ('ideal') mark, but the visualisation is, in my opinion, much nicer.

The information on each module is presented in a consistent and coherent manner on the Department's Module and Programme Catalogue web pages. This makes it easy to check content and learning outcomes.

The course content is nicely mapped to the ACM curricula and a structure chart is made available to all students showing visually how the mapping has been done.

The individual projects are divided by type in order to accommodate students with diverse backgrounds. This is a nice idea in principle, although there may be some potential issues (see below).

Enhancements made from the previous year

Please highlight any enhancements made to the programme(s) or processes over the past year in this box.

N/A as I was not an examiner last year

Matters for Urgent Attention

If there are any areas which you think require urgent attention before the programme is offered again please note them in this box

N/A

For Examiners in the first year of appointment

1.	Were you provided with an External Examiners Handbook?	Y
2.	Were you provided with copies of previous relevant External Examiners' reports and the response of the School to these?	Y
3.	Were you provided with a External Examiner Mentor?	Y

For Examiners completing their term of appointment

4.	Have you observed improvements in the programme(s) over the period of your appointment?	N/A
5.	Has the school responded to comments and recommendations you have made?	N/A
6.	Where recommendations have not been implemented, did the school provide clear reasons for this?	N/A
7.	Have you acted as an External Examiner Mentor?	N

Please comment on your experience of the programme(s) over the period of your appointment, remarking in particular on changes from year to year and the progressive development and enhancement of the learning and teaching provision, on standards achieved, on marking and assessment and the procedures of the School

N/A

Standards

8.	Is the overall programme structure coherent and appropriate for the level of study?	Y
9.	Does the programme structure allow the programme aims and intended learning outcomes to be met?	Y
10.	Are the programme aims and intended learning outcomes commensurate with the level of award?	Y
11.	Did the Aims and ILOs meet the expectations of the national subject benchmark (where relevant)?	Y
12.	Is the programme(s) comparable with similar programmes at other institutions?	Y

Please use this box to explain your overall impression of the programme structure, design, aims and intended learning outcomes.

The aims and objectives are fine and the course content is nicely mapped to the ACM curricula.

The first year is zero-weighted and I am personally uncomfortable with that, as it can encourage some students to cruise in the first year. However, this is for the Department (or University?) to decide.

I have some issues with the course structure, particularly in relation to the MEng. The fourth year of the degree is not popular with students and I believe this might be down to the way the earlier years are structured. I address this in more detail below (box 13).

13.	Is the influence of research on the curriculum and learning and teaching clear?	Y
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Please explain how this is/could be achieved (examples might include: curriculum design informed by current research in the subject; practice informed by research; students undertaking research)

The projects are all intended to have a research element. However, the connection between these projects and the Department's own research activities is not as strong as one might expect. The word 'research' is taken to be more about 'finding things out for yourself', rather than engagement with a topical research problem currently under

investigation by a research group or individual. I didn't get to see all the projects but this was the general impression I got from those that I looked at.

There is also no individual project in the fourth year of the programme; instead there is another group project, presumably similar to the group projects in first and second year, only on a larger scale. This comes across on paper as being a bit of an anti-climax. The fourth year should be about depth, and for a project that suggests focusing on exciting and possibly more speculative aspects of Computing rather than doing yet more group-based engineering. I think there is a missed opportunity here. The impression is that the fourth year of the MEng is not attractive to many students and this is backed up by the number of students electing to take it.

I suspect that the problem stems from the desire to provide an exit route at the end of the third year, by which time graduates of the BSc will need to have done a group and individual project, in order to meet accreditation requirements. If this is the case then one idea might be to fork students off earlier, so that MEng3 and BSc3 diverge, e.g. with MEng students doing a more substantial research project in the final year, rather than in year 3. An alternative used elsewhere is to have a follow-on, or extended, project in the final year. Either way, I think you should consider some options. Under the current structure my feeling is that you will struggle ever to attract many students into the fourth year.

14.	Does the programme form part of an Integrated PhD?	N
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Please comment on the appropriateness of the programme as training for a PhD:
N/A

15.	Does the programme include clinical practice components?	N
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Please comment on the learning and assessment of practice components of the curriculum here:

16.	Is the programme accredited by a Professional or Statutory Regulatory Body (PSRB)?	Y
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Please comment on the value of, and the programme's ability to meet, PSRB requirements here:

The courses are accredited by the British Computer Society (BCS). This is a standard accreditation for many computing-related degrees.

Assessment and Feedback

17.	Does the programme design clearly align intended learning outcomes with assessment?	Y
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Please comment on the assessment methods and the appropriateness of these to the ILOs, in particular: the design and structure of the assessment methods, and the arrangements for the marking of modules and the classification of awards; the quality of teaching, learning and assessment methods that may be indicated by student performance.

The assessment methods seem appropriate for the LOs specified in the Department's Module and Programme Catalogue.

18.	Is the design and structure of the assessment methods appropriate to the level of award?	Y
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19.	Were students given adequate opportunity to demonstrate their achievement of the programme aims and intended learning outcomes?	Y
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Please comment on the academic standards demonstrated by the students and, where possible, their performance in relation to students on comparable courses; the strengths and weaknesses of the students as a cohort:

The examination papers are generally of a good academic standard.

The projects cover a diverse set of topics and the good ones are very well executed. Overall, however, I was less impressed with the write-ups than I have seen elsewhere. Some reports were heavy on project management and personal reflection. The student's personal journey of discovery is simply not interesting and, in my opinion, it weakens the report. Also, a discussion of project management seems to me to be more relevant to group projects. A top-class individual project emerges *because* of good management and I don't personally feel that describing how a student organised themselves adds value to the report. Obviously the expectations for a group project are very different, as the understanding and mastering good software engineering and collaborative working practices are key learning outcomes.

These observations on the write-ups are in line with my earlier comments about linking projects to research. I would expect individual projects, particularly those that claim to be research projects, to be written up more in the style of a PhD than a group activity or a personal journey of discovery. For example: What is the problem? Why is it interesting? What are the main challenges? What are the contributions? In my opinion a little tightening up on the guidelines for project write-ups, and perhaps a little more ambition in terms of the topics and expectations, would help here.

My overall impression of the marking of projects was that it was quite generous. One project received a mark of 87%, yet I felt the achievements and evaluation were not consistent with a mark in the 80s. It would certainly not have achieved a mark in that range in my own institution. Another project, which was a fairly mundane implementation project with pretty weak evaluation was awarded 70%. This is a first-class mark, yet the project seemed to me to be at best a low 2/1.

I will be happy to discuss these issues further at my next visit.

Please use this box to provide any additional comments you would like to make in relation to assessment and feedback:

I am unable to comment on the Department's feedback processes.

The marking of individual projects involves a third marker and my understanding is that they do not see the presentation and demo. I wonder if that is fixable?

There was also substantial variation in the marks awarded for some projects. Some variation is healthy and it is good that there is a process in place for converging on a mark. However, one project received marks of 93, 75 and 60 and this suggests either that the marking criteria are not clear or that the examiners are not following them. Although it's not easy to do, you may find it useful to write down, in very general terms, what a project in the various mark bands typically looks like, e.g. 40-50, 50-60, 60-70, 70-80, 80+. We were advised to do this a number of years ago at Imperial and we have found that it had the effect of reducing the variance of the initial marks awarded by examiners. It is also very useful for resolving disputes when markers disagree.

The Progression and Awards Process

20.	Were you provided with guidance relating to the External Examiners role, powers and responsibilities in the examination process?	Y
21.	Was the progression and award guidance provided sufficient for you to act effectively as an External Examiner?	Y
22.	Did you receive appropriate programme documentation for your area(s) of responsibility?	Y
23.	Did you receive appropriate module documentation for your area(s) of responsibility?	Y
24.	Did you receive full details of marking criteria applicable to your area(s) of responsibility?	Y
25.	Were you provided with all draft examination papers/assessments?	Y
26.	Was the nature and level of the assessment questions appropriate?	Y
27.	Were suitable arrangements made to consider your comments on assessment questions?	Partially
28.	Was sufficient assessed work made available to enable you to have confidence in your evaluation of the standard of student work?	Y
29.	Were the examination scripts clearly marked/annotated?	Partially
30.	Was the choice of subjects for final year projects and/or dissertations appropriate?	Y
31.	Was the method and standard of assessment appropriate for the final year projects and/or dissertations?	Y
32.	Were the administrative arrangements satisfactory for the whole process, including the operation of the Progression and Awards Board?	Y
33.	Were you able to attend the Progression and Awards Board meeting?	Y

34.	Were you satisfied with the recommendations of the Progression and Awards Board?	Y
35.	Were you satisfied with the way decisions from the School Special Circumstances meeting were communicated to the Progression and Awards Board?	Y
<p><i>Please use this box to provide any additional comments you would like to make on the questions above:</i></p> <p>The administrative staff at Leeds were extremely helpful and we were provided with all the additional information we requested.</p> <p>I think there are some problems with the marking process that need to be addressed. All exam papers are supposed to be second marked but in some cases there is no evidence that this had been done. 10% of scripts are supposed to be checked by an independent marker, yet on at least one batch of scripts (2711?) there were only marks from the principal examiner. It is good to have a process, but please stick to it. Also, please provide evidence that every page has been marked and checked (e.g. using two pen colours).</p> <p>It is always interesting to know whether/how comments made by external examiners are taken into account when preparing the final version of an exam paper. I was able to find some of the feedback from the examiners, but by no means all. It would be useful to have a complete set of feedback in future in order to close the loop. I don't mind if someone chooses to ignore my suggestions, but I do think it's important that there be evidence that they have received and read them and I would like to know the extent to which they were acted on.</p> <p>A final comment that should be easily addressed is that I found it quite hard to locate the projects I wanted to look at, e.g. those around a borderline or the spread of marks for a particular project type. It seemed that a lot of cross-referencing had to be done followed by a rather inefficient linear search. One suggestion is that you place the reports in mark order, possibly in separate piles, depending on the project type.</p>		

Other comments

Please use this box if you wish to make any further comments not covered elsewhere on the form

The individual projects come in four flavours: theoretical study, exploratory software development, software product and empirical investigation. One the one had I think it is useful to identify the type of project in advance in order to help student to make an informed choice. However, I am concerned that this flexibility can allow a student to pass (presumably with first-class honours, in principle) without every exercising their ability to design a build a system that works. I raised this with the course organisers and they provided some reassurance that students can't sidestep the engineering issue completely. For the time being I simply raise this as a possible concern. It will be interesting to look more closely at this in the next several visits.



6 December 2017

Dear

I am responding on behalf of the University of Leeds to an issue you raised in your external examiner's report for Computer Science programmes in the School of Computing, received on 16 October 2017.

You query whether the non-inclusion of year 1 results in the classification algorithm is the decision of the department or the University. Year 1 in all undergraduate programmes across the University does not count towards the degree classification. Classification at Leeds is based on a single unambiguous measure, called the *Classification Average*, which is compared against a standard scale of thresholds to determine the degree class. This Classification Average is essentially a weighted average of all upper-year module grades, where the weighting depends on the student's performance in the final two years of a Bachelor degree or the final three years of an integrated degree of Master and Bachelor.

Students are required to achieve published criteria in order to progress from year 1 to 2, as outlined in section 6 of the Rules for Award (page 31 of the External Examiners Handbook http://ses.leeds.ac.uk/info/22149/az_of_policies_and_key_documents/913/external_examiner_handbook_taught_students), and programme specifications.

We take very seriously the views of our external examiners and consider them thoroughly as part of our reflection on the standards of our awards and the quality of our students' experiences.

Yours sincerely,

Head of Quality Assurance