

The University of Leeds
EXTERNAL EXAMINER'S REPORT

ACADEMIC YEAR: 2016-17

Part A: General Information

Subject area and awards being examined

Faculty / School of:	Physics and Astronomy
Subject(s):	Physics
Programme(s) / Module(s):	Physics, Physics with Astrophysics, Physics with Nanotechnology, Theoretical Physics. Medical Physics
Awards (e.g. BA/BSc/MSc etc):	BSc, MPhys

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 have appreciated the marking of projects at Leeds. Submission of lab diaries together with reports is good and we have adopted this practice at Cardiff.

Enhancements made from the previous year

Please highlight any enhancements made to the programme(s) or processes over the past year in this box.
Good programmes and procedures, similar to 2015-16.

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
Changes in the students' average marks during my four years at Leeds do concern me – see comments following point 19 below.

For Examiners in the first year of appointment

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

For Examiners completing their term of appointment

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

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

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
<p><i>Please use this box to explain your overall impression of the programme structure, design, aims and intended learning outcomes.</i></p> <p>The various degree schemes at Leeds offer students a range of options from a wide spectrum of areas of Physics and an excellent learning experience.</p> <p>The aims and ILOs are suitable and comparable with other Russell Group universities.</p> <p>Teaching material and style are broadly similar to other Physics departments.</p>		
13.	Is the influence of research on the curriculum and learning and teaching clear?	Y
<p><i>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)</i></p> <p>There are strong connections between research strengths and some of the taught modules, as in many Physics departments. In my area of expertise relating to nanotechnology and biophysics, there is a strong synergy between teaching and research.</p>		
14.	Does the programme form part of an Integrated PhD?	N/A
<p><i>Please comment on the appropriateness of the programme as training for a PhD:</i></p>		
15.	Does the programme include clinical practice components?	N/A
<p><i>Please comment on the learning and assessment of practice components of the curriculum here:</i></p>		
16.	Is the programme accredited by a Professional or Statutory Regulatory Body (PSRB)?	Y
<p><i>Please comment on the value of, and the programme's ability to meet, PSRB requirements here:</i></p> <p>Appropriate for the Institute of Physics accreditation.</p>		

Assessment and Feedback

17.	Does the programme design clearly align intended learning outcomes with assessment?	Y
<p><i>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.</i></p> <p>The examination papers and continuous assessment elements I looked at were appropriate and consistent with the ILOs. The balance between exam and continuous assessment contributions were acceptable.</p> <p>Student performance in projects and in exams indicated good quality of teaching.</p>		

18.	Is the design and structure of the assessment methods appropriate to the level of award?	Y
19.	Were students given adequate opportunity to demonstrate their achievement of the programme aims and intended learning outcomes?	Y
<p><i>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:</i></p> <p>Student performance was broadly comparable with other institutions – as compared with my experience in Cardiff and colleagues' experience at other institutions.</p>		
<p><i>Please use this box to provide any additional comments you would like to make in relation to assessment and feedback:</i></p> <p>In my report for 2015-16, I noted an increase in the average marks from that in the previous two years. Allowing for the usual fluctuations in the quality of different cohorts, this was not that surprising.</p> <p>This year, the average marks are still considerably higher than during the first two years I was external examiner. I have only noted marks for the full year 3 cohort (including MPhys): 59.3, 59.8, 67, 65.6 respectively for years 2013-14, 2014-15, 2015-16 and 2016-17 respectively. 50% of year 3 students attained marks of 69% or greater. My impression, based on a very limited annual snapshot, is that there has not been a corresponding change in the overall quality of student performance during my time at Leeds. The School may wish to consider the longer-term effect of such a trend on the standing of its awarded degrees, even though we recognise current pressures across the university sector.</p>		

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?	Y
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?	Y
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
<i>Please use this box to provide any additional comments you would like to make on the questions above:</i>		
<p>The arrangements for my visits to Leeds were very good and well-administered by well-motivated staff. Requests for information were handled promptly and efficiently and any issues raised regarding individual papers were dealt with appropriately. The Board of Examiners was conducted well with the overall classifications as well as individual cases handled with care. I have appreciated the care and hospitality extended by the School of Physics and Astronomy.</p>		

Other comments

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

Name of School and Head of School (or nominee)

Title and Name of Responder:	
Position*:	Head of School
Faculty / School of:	MAPS, School of Physics and Astronomy
Address for communication:	School of Physics and Astronomy University of Leeds Woodhouse Lane Leeds LS2 9JT
Email:	
Telephone:	

*If the individual responding to the report is not the Head of School please state their position within the School.

Completing the School response

The completed School response (including the full original report) should be attached to an e-mail and sent to the Pro-Dean for Student Education in the relevant Faculty. Following approval by the Pro-Dean for Student Education, the School must send the response (including the full original report) directly to the External Examiner. A copy must also be emailed to the Quality Assurance Team at gat@leeds.ac.uk. External Examiners should receive a formal response no later than six weeks after receipt of the original report.

Response to Points of innovation and/or good practice

We thank the examiner for praise of our project marking.

Response to Enhancements made from the previous year

We appreciate the examiner's comments.

Response to Matters for Urgent Attention

If any areas have been identified for urgent attention before the programme is offered again please provide a specific response to them here:

We thank the examiner for analysis of our exam results. Whilst a certain variability in the average marks is to be expected from one year to another, we would not expect them to rise any higher. However there was strong evidence that our averages were lower than the Russell group and the recent increase has been the result of working hard to correct this. We will of course monitor the situation to ensure that there is no further unwarranted increase.

Response to questions 1-7 (and related comments)

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

We thank the examiner for his positive assessment of his experience of working with us.

Standards**Response to questions 8 to 16 (and related comments)**

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

We appreciate the examiner's positive response, and are particularly gratified by his comments on the synergy between our teaching and our research.

Assessment and Feedback**Response to questions 17 to 19 (and related comments)**

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

We appreciate the examiner's favourable comments on our examination papers and continuous assessment procedures, and on the quality of our teaching.

Please see further our response to "Matters for Urgent Attention" above.

The Progression and Awards Process

Response to questions 20-35 (and related comments)

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

We are very happy with the examiner's kind comments. We have certainly appreciated the help and advice that the examiner has given us over the past four years.

Other comments

Response to items included in the 'Other Comments' section of the report

The University of Leeds
EXTERNAL EXAMINER'S REPORT

ACADEMIC YEAR: 2016-17

Part A: General Information

Subject area and awards being examined

Faculty / School of:	Physics and Astronomy
Subject(s):	<i>Astrophysics, Physics, Maths</i>
Programme(s) / Module(s):	Physics, Physics with Mathematics, Physics with Astrophysics, Physics with Nanotechnology, Physics with Medical Physics, Theoretical Physics
Awards (e.g. BA/BSc/MSc etc):	BSc, MPhys

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

Points of innovation and/or good practice

There is good evidence for year-on-year improvements in both the examination papers and the scripts/results, which is to be commended. Overall, I was very pleased to see that the examination results for most modules are described by near-normal distributions, and that it was not necessary to apply any major re-scaling functions this year. On a point of procedure, I am delighted that examiners are now only required to sign a cover sheet listing the modules for which marks have been approved. This eliminates an obvious administrative burden.

Enhancements made from the previous year

There have been positive responses to the suggestions that I made in my report last year. For example; examination questions have been monitored for length, and the progression of a problematic second year into the third year has been carefully managed. I was also given clear explanations concerning the statistics and procedures for students with mitigating circumstances.

Matters for Urgent Attention

None

For Examiners in the first year of appointment

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

For Examiners completing their term of appointment

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

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
<p><i>Please use this box to explain your overall impression of the programme structure, design, aims and intended learning outcomes.</i></p> <p>The intended learning outcomes are fully aligned with the expectations for the award levels. The coverage of subject areas is comprehensive, and the structure, content and standards are balanced and appropriate for the awards. The standards/aims and ILOs are very similar to those used at my own institution and other HEIs where I have had a role as external examiner. They are completely in-line with national subject benchmarks and expectations.</p>		
13.	Is the influence of research on the curriculum and learning and teaching clear?	Y
<p><i>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)</i></p> <p>The curriculum is topical and relevant to the subjects taught and individual lecture courses are kept abreast of current research and developments.</p> <p>As expected, the level 3/5 projects contain significant elements of original research on highly topical subjects.</p>		
14.	Does the programme form part of an Integrated PhD?	N
<p><i>Please comment on the appropriateness of the programme as training for a PhD:</i></p> <p>n/a</p>		
15.	Does the programme include clinical practice components?	N
<p>n/a</p>		
16.	Is the programme accredited by a Professional or Statutory Regulatory Body (PSRB)?	N
<p><i>Please comment on the value of, and the programme's ability to meet, PSRB requirements here:</i></p> <p>n/a</p>		

Assessment and Feedback

17.	Does the programme design clearly align intended learning outcomes with assessment?	Y
<p><i>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.</i></p> <p>I am happy that the assessment methods (examinations, coursework, projects etc.) are appropriate, rigorous, testing and fair. Exams and project work have been marked fairly, accurately and consistently.</p>		
18.	Is the design and structure of the assessment methods appropriate to the level of award?	Y
19.	Were students given adequate opportunity to demonstrate their achievement of the programme aims and intended learning outcomes?	Y
<p><i>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:</i></p> <p>There is a good performance across levels, although level 2 continues to pose problems (see below).</p> <p><i>Please use this box to provide any additional comments you would like to make in relation to assessment and feedback:</i></p> <p>The students clearly demonstrate a high level of academic learning that is very similar to what I have found for student cohorts on similar programmes elsewhere.</p>		

As noted last year, there continues to be a problem with some modules, and especially for level 2 in that, although the distributions of the marks in the exams are essentially normal, there are very large failure rates - even in the core modules. Close inspection reveals that, in most cases, there is a strong overlap between the cohorts of students who are failing in the different modules and that there is a 'leverage' effect resulting in larger shifts in the average for smaller classes. As such, the problem is general and is not related to individual courses. I noted a similar problem last year which, fortunately, did not translate into problems in the third year - but this clearly a significant (and seemingly ongoing) problem that needs to be rectified. One possibility that may be considered – if it isn't already done - is to make the attendance at problem-solving classes etc. compulsory.

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 (see below)
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?	Y
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?	Y (see below)
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 (see below)
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

Please use this box to provide any additional comments you would like to make on the questions above:

I was provided with all of the necessary guidelines, description of the rules and documentation to make a thorough assessment of the examinations, assessment and progressions procedures. There was one (very slight) confusion concerning the allocation of modules/exams to external examiners, but it did not cause any problems that we could not resolve.

I attended and was invited to take part in the internal board of examiners' meeting. This was well-managed, with clear deliberations and outcomes.

I was provided with copies of all draft examination papers and model solutions. I checked them for accuracy, clarity, academic standard and consistency. I found the examination papers to be of a uniformly high quality with very few errors requiring correction. In general, the exams test a comprehensive range of subject material at an appropriate level, and contain a good balance of unseen, familiar problem and bookwork components.

Whilst most exam papers were error-free and have a consistent academic level appropriate to the cohort being examined, there is some considerable variation in the difficulty of the A-section questions, some of which have

significant unseen components. These tougher questions yield lower marks and so I recommend that some guidelines/rules need to be defined that are applicable to A-section questions in *all* papers. This might take the form of requiring the questions to be of a predominantly bookwork nature, but I leave that decision to the Board of Examiners.

As part of the assessment, I also scrutinised the spreadsheets, examination scripts (paying particular attention to borderline candidates), the laboratory reports and 3rd/4th year project reports.

In my opinion all exams were marked fairly, carefully, clearly and consistently.

I would like to re-state a minor criticism in that I would like to see some evidence that scripts have been second marked/moderated (where appropriate), perhaps by the second marker initialling the front page of the script, or something similar.

Both the year 3 and year 4 projects are of a very high standard. I continue to express a little concern that the annotation of the scripts is very variable, so that for some reports it is difficult to see how the final mark was agreed upon, or what formative feedback can be transmitted to the student.

A more significant issue is that the projects are extremely wide-ranging, so that it is not clear how the grading of a mainstream physics project can be ranked alongside, say, one on the teaching of physics in schools. I therefore recommend the creating of a mechanism/panel that looks at the marks of all the projects and imposes a uniform standard of assessment.

Other comments

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

My thanks go to the academic and secretarial staff for their duty of care and professionalism, and for giving me all the help and guidance needed so that I could form a true assessment of the teaching, examination and assessment procedures.

Name of School and Head of School (or nominee)

Title and Name of Responder:	
Position*:	Head of School
Faculty / School of:	<i>MAPS, Physics and Astronomy</i>
Address for communication:	School of Physics and Astronomy University of Leeds Woodhouse Lane Leeds LS2 9JT
Email:	
Telephone:	

*If the individual responding to the report is not the Head of School please state their position within the School.

Completing the School response

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Response to Points of innovation and/or good practice

We are pleased with the examiner's comments and are extremely grateful for the significant part that he has played in helping us to achieve the improvements he mentions.

Response to Enhancements made from the previous year

Again, we acknowledge the examiner's contribution to improving our examination procedures.

Response to Matters for Urgent Attention

If any areas have been identified for urgent attention before the programme is offered again please provide a specific response to them here:

N/A

Response to questions 1-7 (and related comments)

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

N/A

Standards**Response to questions 8 to 16 (and related comments)**

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

We are pleased that the examiner finds our programme structure and learning outcomes satisfactory and in line with national expectations. We also find the examiners comments on the interaction between our teaching and research programmes gratifying.

Assessment and Feedback**Response to questions 17 to 19 (and related comments)**

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

We note that the examiner finds our assessment methods appropriate and that our students achieve at an expected level.

However, we share concern about the large failure rate on level 2 modules. Like the examiner, we believe that it is related to poor attendance by a minority of students, not only at workshops but also at lectures. We are taking steps to get to grips with this, by more effective attendance monitoring and personal intervention for students who are recognised as being at risk of disengagement and academic failure.

The Progression and Awards Process

Response to questions 20-35 (and related comments)

Schools may provide a general response; however, where Examiners raise specific points these must be addressed individually:

We thank the examiner for some very useful final comments on the exam setting and assessment process.

We will in future pay increased attention to the A questions in order to make them more similar in the level of difficulty.

We will be implementing the examiner's suggestions about a more careful scrutiny of exam scripts by a mark checker.

We will also look carefully at how best to ensure a uniform assessment standard across the many diverse topics of especially the third-year B.Sc. projects. This is not such a problem with the fourth-year MPhys projects, which are all research-based.

Other comments

Response to items included in the 'Other Comments' section of the report

We thank the examiner for his kind and encouraging words.