



EXTERNAL EXAMINER ANNUAL REPORT FORM

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|---|--------------------------------------|-----------------|------------------|
| | For completion by External Examiner: | | |
| Name of External Examiner: | CHARLOTTE KATHERINE WILLIAMS | | |
| M | IMPERIAL COLLEGE LONDON | | |
| Programme and / or Subjects Covered by this Report: | MRES Catalysis | | |
| Academic Year / Period Covered by this Report: | 2015-2016 | Date of Report: | 23 February 2016 |

For completion by External Examiner in the spaces provided. Please extend spaces where necessary. **Please note this Form will be published online.**

1. Programme Structure

The programme is a one year taught masters by research (MRes) course as part of the centre for doctoral training in Catalysis. The programme operates between Cardiff, Bath and Bristol universities and involves taught courses from departments of chemistry and chemical engineering across the institutions. The course comprises taught lecture modules, a catalyst design project and two research sabbaticals. The students are also expected to attend research skills lectures and courses. The course is assessed by a mixture of examination, research project reports, poster and oral presentations and involves aspects of group team work as well as individual study.

2. Academic Standards

The academic standards were assessed and examined in the form of written commentary on the examination papers and also in the examination sub-board meeting held on 23 February. As external examiner, I also examined and read the exam papers of all the 13 students. It is notable that the course covers a broad range of subject matter and it is certainly very good that students have the opportunity to study and learn topics as diverse as reaction engineering, bio-catalysis, heterogeneous catalysis and homogeneous catalysis.

The examination questions were found to be generally well answered and the grade averages for the papers were well within the expected margins for masters level. Each student sits three examination papers, on advanced heterogeneous catalysis,

recent advances in homogeneous catalysis and chemical and catalytic reaction engineering. There is a very good breadth of material covered and a range of different types of questions, including lots of problem solving, calculations, derivations, proposed mechanisms and catalyst structures. It is notable that the breadth and range of problem solving, particularly for homogeneous catalysis questions, is much improved compared to 2014-2015. Nonetheless, the grade average has remained the same. There are a different number of questions offered between the homogeneous paper (CHT402 – 13 questions offered) compared to the advanced heterogeneous paper (CHT401 – 8 questions offered) although the students need for each paper to select only four questions to answer. It might be worth consolidating the options to the same number (i.e. reducing the number of options for the homogeneous catalysis paper). Once again, this is a comment for consideration and not a strong recommendation for change.

3. The Assessment Process

In general the assessment process was very good and as expected at masters level. The examination questions were also well-marked with clear comments where answers fell short of the maximum possible marks. The grade averages were at the expected level and within the normal range expected for all questions; it is notable that the chemical engineering paper showed a higher grade average but analysis of the paper shows that the students were set demanding and varied questions but were able to provide accurate and correct answers, there was also a fair distribution of marks demonstrating that the questions were demanding and were able to differentiate the student's abilities. It was also apparent that there was not any notable or significant variation in particular question average grades: these are signs that the questions were well written and appropriately assessed. I am confident the assessment process was rigorous and appropriate for discrimination between candidates at the masters level.

4. Year-on-Year Comments

The examination papers all showed an appropriate balance of problem solving and masters level questions appropriate for the MRes qualification. The process has changed from 2014-2015 and in my view has improved, particularly for the questions on the homogeneous catalysis papers. For the next academic year, it is recommended that the same balance of problem solving, data analysis and calculations are used for examination at this level..

5. Preparation / Induction Activity (for new External Examiners only)

The course handbook and descriptions of the modules were sent in advance. Furthermore, the exam papers were sent for commentary in December and responses to the comments were received.

The course structure, marking schemes, all student work and examination papers were also available for examination during the first examination sub-board meeting. This was most welcome and very helpful.

6. Noteworthy Practice and Enhancement

The course delivers a broad education across a range of disciplines: the academic standards are good/excellent and the methods of assessment are fair and transparent.

7. Appointment Overview (for retiring External Examiners only)

8. Annual Report Checklist

Please include appropriate comments within Sections 1-7 above for any answer of 'No'.

| | | Yes (Y) | No (N) | N/A (N/A) |
|--|---|------------|-----------|--------------|
| Programme/Course Information | | | | |
| 8.1 | Did you receive sufficient information about the Programme and its contents, learning outcomes and assessments? | x | | |
| 8.2 | Were you asked to comment on any changes to the assessment of the Programme? | | x | |
| Draft Examination Question Papers | | | | |
| 8.3 | Were you asked to approve all examination papers contributing to the final award? | x | | |
| 8.4 | Were the nature, spread and level of the questions appropriate? | x | | |
| 8.5 | Were suitable arrangements made to consider your comments? | x | | |
| Marking Examination Scripts | | | | |
| 8.6 | Did you receive a sufficient number of scripts to be able to assess whether the internal marking and classifications were appropriate and consistent? | xx | | |
| 8.7 | Was the general standard and consistency of marking appropriate? | x | | |
| 8.8 | Were the scripts marked in such a way as to enable you to see the reasons for the award of given marks? | x | | |
| 8.9 | Were you satisfied with the standard and consistency of marking applied by the internal examiners? | x | | |
| 8.10 | In your judgement, did you have the opportunity to examine a sufficient cross-section of candidates' work contributing to the final assessment? | x | | |
| Coursework and Practical Assessments | | | | |
| 8.11 | Was the choice of subjects for coursework and / or practical assessments appropriate? | x | | |
| 8.12 | Were you afforded access to an appropriate sample of coursework and / or practical assessments? | x | | |
| 8.13 | Was the method and general standard of assessment appropriate? | x | | |
| 8.14 | Is sufficient feedback provided to students on their assessed work? | x | | |
| Clinical Examinations (if applicable) | | | | |
| 8.15 | Were satisfactory arrangements made for the conduct of clinical assessments? | | | |
| Sampling of Work | | | | |
| 8.16 | Were you afforded sufficient time to consider samples of assessed work? | | | |
| Examining Board Meeting | | | | |

| | | Yes (Y) | No (N) | N/A (N/A) |
|--|---|--------------------|-------------------|----------------------|
| 8.17 | Were you able to attend the Examining Board meeting? | x | | |
| 8.18 | Was the Examining Board conducted properly, in accordance with established procedures and to your satisfaction? | x | | |
| 8.19 | Cardiff University recognises the productive contribution of External Examiners to the assessment process and, in particular, to the work of the Examining Board. Have you had adequate opportunities to discuss the Programme and any outstanding concerns with the Examining Board or its officers? | x | | |
| Joint Examining Board Meeting (if applicable) | | | | |
| 8.20 | Did you attend a Composite Examining Board, i.e. one convened to consider the award of Joint Honours degrees? | | | |
| 8.21 | If so, were you made aware of the procedures and conventions for the award of Joint Honours degrees? | | | |
| 8.22 | Was the Composite Examining Board conducted according to its rules? | | | |

Please return this Report, preferably in a Microsoft Word format, by email to:

ExternalExaminers@cf.ac.uk

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Clive Brown, Registry Officer, Registry & Academic Services, Cardiff University,
McKenzie House, 30-36 Newport Road, Cardiff, CF24 0DE