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1. THE ACCREDITATION PROCESS

1.1 Introduction

Medical physicists and biomedical engineers are employed in hospitals, in industry, in universities and, to a lesser extent, in government departments.

The previous IPEM accreditation scheme for MSc’s (prior to 2012) focussed mainly on accrediting degrees for the training scheme within the UK National Health Service. However, the changeover to the Modernising Scientific Careers scheme has meant that IPEM no longer fulfils this role. The employment routes for students have also changed markedly in the last decade; the majority of graduates from UK postgraduate programmes in medical physics and biomedical engineering no longer find employment in hospitals, with industrial and academic employers now over half of same-sector graduate destinations.

This has given IPEM an opportunity to broaden the accreditation scheme to include a wider range of masters degrees across the full range of applications of physics and engineering in medicine and biology. This broadening extends to participation in non–UK programme accreditation.

The educational and operational aspects of the new accreditation process are outlined in the MLAF handbook, available from the IPEM webpage [here](#).

The framework includes certain educational content which all students must either have studied prior to entry, or in the ‘entry component’ of the programme. Other educational content, within the ‘compulsory element’ must be taken by all students. However there is scope for more specialist material in the masters programme. There is also a requirement for a research project and poster and talk activities to develop or refine student presentation skills. A range of programme titles may be acceptable, including those that are more specialist than the traditional ‘MSc Medical Physics’ or ‘MSc Biomedical Engineering’.

The aim of this document is to assist programme directors in the process of applying for accreditation and in completing the application form. It should be read in conjunction with the MLAF handbook and the application form available on the IPEM webpage [here](#).

It is emphasised that the accreditation process is not an audit of the academic validity of a masters programme, which is the responsibility of the University involved and the external examiners of the programme. It is a 'kite mark' of suitability and quality for that programme.

1.2 Outline of Procedure

The accreditation process is operated under the guidance of the Professional and Standards Council (PSC) of IPEM, with this responsibility delegated to the IPEM Course Accreditation Committee (CAC) operating according to their Terms of Reference. Master's degree accreditation is undertaken by MLAF Assessors.

In summary, the programme can be broken down into four phases:

1. The application by an institution for accreditation of a masters taught programme supported by submitting the completed accreditation documentation, which should include its curriculum, learning outcomes, a complete set of examination papers, etc. There is a fee for this process which should be paid to the IPEM office in advance of the assessment visit. Current fees for UK universities and non-UK universities are available from the [IPEM Training department](#). In addition, reasonable travel/accommodation expenses of the assessors, normally two, must be met and paid later directly by the host university.
2. The appointment of assessors who visit the institution to discuss, clarify and substantiate information in the accreditation documentation. The assessors liaise between the CAC MASP and the programme organisers. Assessors are not paid for this task. It should be noted that, as part of being assessed, institutions are expected to provide a suitable person to act as an assessor in future assessments of other institutions. This person can expect to be called upon once a year, if required.
3. Discussion by the CAC of the assessor's written comments and the accreditation documentation. New or clarifying information may be requested at this stage by the assessors or the CAC.
4. Decision on accreditation award by the CAC. There are several possible outcomes:
 - To award accreditation for a given number of years (usually three in the first instance and five on subsequent visits).
 - To award accreditation subject to minor recommendations; the committee will usually ask for certain essential changes to be made within a given time period (usually a year).
 - To suggest that the HEI re-applies, with recommendations for major changes.
 - To reject for a given number of years.

These decisions are communicated, with justification, by the CAC chair to the programme director. Limitations may be applied, for example awarding accreditation only to a particular pathway of a programme or set of module study options. An independent appeal process is in place (see next section).

5. All programme directors will be asked to submit an annual audit form by December each year. These will be considered by the CAC at its annual meeting. Programmes will normally be evaluated again on a five-year cycle. However new programmes will initially be given shorter accreditation periods of, say, three years subject to a review, to confirm continuation of accreditation.

1.3 Appeals

Any HEI which has a submission for accreditation turned down may appeal in accordance with the procedures set out below. The grounds for appeal may only be made on one or more of the following grounds:

1. There is evidence of administrative, procedural or other irregularities in the conduct of the accreditation visit or other aspects of the accreditation process.
2. Information has become available which would influence the decision, and which was not, and could not have been available at the time of the accreditation or review visit.

Should a HEI be dissatisfied with the outcome of the accreditation process it must make this known in writing or email to the Chair of the CAC within two weeks of the final approved report and accreditation decision. If, after corresponding with the Chair of the CAC, the HEI remains unsatisfied, it may make a formal appeal. The IPEM Vice President (Academic) is, in these circumstances, appointed to independently review the case and make a final decision, using resources s/he deems necessary. The HEI may be asked by the IPEM Vice President (Academic) to submit written reasons for wishing to appeal.

1.4 The Application Process

1.4.1 Programmes eligible for accreditation

Any HEI, either UK or non-UK, is eligible to apply for accreditation of a relevant programme under the MLAF scheme. Programme managers of degree programmes which have not been previously accredited are encouraged to make informal contact with the [IPEM Training department](#), who will put them in contact with a member of the CAC so that they can have an informal discussion before applying.

On receipt of an application, the IPEM office will notify the chair of the CAC. The CAC will appoint assessors, who will then liaise directly with the HEI programme director.

It will usually take up to 6 weeks from receipt of the application for UK-based accreditation assessment for the dates to be established for a site visit and another 6 weeks for a decision to be made by the committee after the site visit, following recommendations and completion of follow-up questions to the HEI by its assessors. Therefore, programmes should apply for accreditation in good time for the start of an academic year.

Non-UK visits may take a little longer to arrange.

1.4.2 Renewal of accreditation

Renewal is not an automatic process. Renewal is required when programmes reach the end of the stated period of accreditation. Programmes must **not** continue to be advertised as IPEM accredited beyond the date of existing accreditation and shall not recommence advertising as an IPEM accredited programme until the renewal process has been completed; however future presentations of programmes which have been accredited may be described as having 'provisional accreditation' so long as an application for that year is in process. IPEM will endeavour to ensure that no untoward delays occur in the processes which would have an adverse effect on accredited programmes. Programmes which have not undergone major changes will be required to show that their teaching is up to date with recent developments in the field; programmes which have undergone major changes may in effect be regarded as new applications, subject to the nature and magnitude of the changes.

An application can be made for a programme which has not yet been presented; in that case assessors will carry out the usual visit and may grant 'provisional accreditation' subject to satisfactory discussions with students when the programme is running. In such cases, where material from similar programmes/modules is being used, it would be very helpful for assessors to view this material.

1.4.3 Completed forms

Completed application forms, *together with payment/purchase order and all supporting documentation*, must be submitted to the [IPEM Training department](#). Forms should **NOT** be sent directly to an assessor. While email should be used to submit most of the documentation, large items (such as programme handbooks or example marking or research project reports) may need to be submitted by secure file transfer. We are unable to process paper applications.

Incomplete forms will be returned for completion.

1.4.4 Payment

The IPEM office will retain all forms and documentation until payment has been received. Current fees for UK universities and non-UK universities are available from the [IPEM Training department](#). In addition, the host university is expected to meet the travel expenses of the assessor/s and, where long distances are involved, assessors' accommodation expenses. These are refunded directly to the assessor.

1.4.5 Confirmation of documentation received

The IPEM office will notify the chair of the CAC that documentation has been received. Assessors will be selected, and documentation copies will be despatched to all assessors and the committee chair.

1.4.6 Date of assessment site visit

On receipt of the completed forms from the IPEM office, the assessors will liaise directly with the programme director to arrange a date and itinerary for the site visit part of the assessment. This will usually be within 6 weeks of documentation being received by the IPEM office. The site visit is expected to be a single day activity.

1.4.7 Assessors' site visit

The assessors will perform the accreditation assessment site visit.

1.4.8 Assessors' report

The assessors will prepare and submit a written report to the CAC. This report will be treated as confidential and not circulated beyond the panel.

1.4.9 CAC decision

The CAC will meet via teleconference to consider the assessors' report and determine (a) whether sufficient information has been received to form a collective decision and (b) whether further information or assurances are required. The CAC will at this, or at a subsequent online meeting, agree a decision on accreditation status and formulate a written justification of the decision for the HEI.

1.4.10 Notification

The programme director and the IPEM office will be advised as to the outcome of the assessment procedure by the chair of the CAC. This will normally be within 6 weeks of the assessors' visit.

1.4.11 Record

The list of accredited programmes will be updated annually on IPEM website.

1.4.12 Annual audit of accredited programmes

Each year in December all accredited programmes will be asked to complete a short questionnaire that forms an audit process governed by the Secretary of the CAC. Audit responses will be reviewed together at the annual meeting of the CAC which takes place in December or January.

The purpose of this audit is primarily to monitor year-on-year changes to a programme, as well as monitor the practice of waiving modules at entry levels for certain groups of appropriately qualified applicants.

At all times it remains the responsibility of the programme director to inform the CAC via the IPEM Workforce Intelligence and Training Department (training@ipem.ac.uk) if any significant changes in the programme are being implemented or planned that might materially affect the accreditation award.

If the audit flags significant concerns in educational quality, academic content or procedures in any programme, the committee may determine that re-accreditation should occur at an earlier time. In all likelihood, concerns from audit activities will be less sweeping and may involve, for example, clarification of how a specific learning outcome is met, recommendation of additional teaching material in one subject area of the programme, or a query as to whether generic issues within this sector of Higher Education are impacting the programme (i.e. changes to health and safety legislation).

The programme leader, or named alternative, of each accredited HEI is responsible for returning the audit form; this will contain the most recently available student data that can be realistically obtained. In December of a specific year, this will be data from the previous academic year. This data collection concerns:

- i) numbers of student enrolled/graduated.
- ii) plagiarism and academic integrity issues.
- iii) data on student entry qualifications for those granted a waiver for 'entry components'.
This should be a spreadsheet file outlining in columns: waived entry-level module; applicant name granted waiver; short rationale for waiver (i.e. 'BSc Physics', 'PhD Warwick 2012', 'Medical Degree Leeds 2013').
- iv) recent external examiner reports.
There is no wish to interfere in the role of the external examiner, merely to observe if any issues relating to ii) or iii) above have been noted or acted upon.
- v) details of minor changes to the programme in the academic year ahead.
- vi) details of staff changes, with information on the qualifications of new staff members.
- vii) details of two named individuals from the HEI willing to serve in the next 12 months as:
 1. the named *programme director*: IPEM would like this person, or someone nominated by this person, to have the responsibility for organising careers events and talks, and to be the first point of contact for masters students wishing to receive guidance on their career options after graduation. Careers events and talks can be organised in conjunction with the Communications and Development Manager at IPEM offices (communications@ipem.ac.uk), who can offer published and electronic resources, such as a standard presentation template. The Communications and Development Manager will also contact the designated person to advise him/her of relevant opportunities for the students and staff (for example free media training, grants, new resources or initiatives) and we would ask him/her to pass these on.

2. the named *volunteer assessor*: an academic available to the accreditation sub-panel as part of their pool of assessors. S/he will be asked to assist in one site visit per year (and its assessor report writing) alongside a panel member. This can be submitted as professional activities for CPD purposes and has travel expenses reimbursed.

2. GUIDANCE NOTES FOR COMPLETION OF THE APPLICATION FORM

2.1 Section A

This section is intended to gather basic information about the HEI, the programme and the staff teaching and directing the programme.

- A6 There will be students taking the programmes over one year or over several years by part-time or flexi-study. This question is so that the MASP can be mindful of students completing degrees that were started several years before, in any event of recommending changes to a module or learning outcome.
- A7 In answering this question, emphasis should be placed on specialised resources which will be available to these science and engineering students in medical physics and clinical engineering. For example, computer laboratories, online resources for maths revision, peer-reviewed journal access.
- A8 Please give information about available personal support resources such as personal tutoring, student support services for counselling, careers advice, etc.
- A9 This question seeks to establish the experience profile of the main teaching staff, including their professional background, expertise and teaching experience.
- A10 Summaries or copies of the external examiner's reports or academic audit material should form part of the supporting documents. This will be treated in strictest confidence. It may be permissible for the assessors to see these at the time of the site visit rather than the documentation being submitted with the form.
- A11 The MLAF allows students to enter an IPEM-accredited programme with a broader range of first degrees than was previously allowed; however this is subject to all students showing attainment to, or being brought up to, the required FHEQ Level 7 standard in all 'entry component' subjects (see the MLAF Handbook). Assessors will therefore need to know the background of students entering a particular master's degree.
The matter of English (or other) language requirement for applicants is included due to the large number of overseas students at UK universities. There is normally a standard policy for an HEI faculty on this matter that can be used in the answer.
Standard policies for the waiving of 'entry component' modules can also be listed in this section. For example: 'All applicants with a physics degrees exempt from Core Physics', 'all medically qualified applicants exempt from Life Sciences'.

2.2 Section B

This section is intended to substantiate how the programme meets the criteria of IPEM with regard to breadth and depth of teaching, basic programme structure and curriculum. It should be supported by syllabuses of the programme, examination material and other relevant documents or information.

- B1 This should place the knowledge and skills base taught by the programme in the context of either the physics or engineering framework stream and gives an overview of the programme. It also gives programme directors an opportunity to emphasise the unique qualities of the programme.
- B2 This should provide a quick means of learning about all the programme modules, their pre-requisites and optional pathways. This should make it simple to place the programme modules within the context of the 'components' of the IPEM MLAF.

This is a particularly important section if the programme is highly modular. It should make clear all the possible routes through the programme; in particular which routes the programme organiser feels satisfy the IPEM criteria and which do not (if there are multiple pathways in a programme).

- B3 Please show where in the structure each of the programme-wide learning outcomes is met.
- B4 Please complete this table, extending as required for each sub-heading in the left hand column so that the assessors have a clear picture of how to match each module within the IPEM MLAF.
- B5 This more detailed learning outcomes map should demonstrate where each subject area learning outcome is met.
- B6 If an external body or other HEI is used to deliver some educational content, a clear statement of assessment and examination procedures is important. Relevant syllabus and examination documentation of any externally organised programme should be available in the supporting documents.
- B7 The examination and assessment rules as stated in your programme handbook should be copied with the submission, along with details about re-sits and the policy on condoned passes etc.
- B8 Please give details of your university's policy on academic conduct and its enforcement.
- B9 Please give details on how your department ensures fair and equal procedures for all students and staff irrespective of their gender, sexuality, age, religion, ethnicity, and disabilities. (For IPEM's policy click [here](#).)

2.3 Section C

This section is concerned with the role of the scientific dissertation work in the programme.

- C1 Copies of dissertations and projects should be available at the assessor site visit. Organisers of programmes which have not yet run should not complete this section but should prepare material on proposed projects for discussion with the assessors at the time of the visit.
In general, content of a masters dissertation should aim at being up to the standard that is publishable at a scientific meeting. It should demonstrate a good level of scientific/engineering knowledge, a comprehensive and well-referenced literature review, the research and investigative skills to carry out an investigation, and the ability of the student to exercise critical judgement and some self-direction. It need not contain original material.
- C3 Please give details on how the student are supported in the preparation of their dissertations e.g. help with using databases and referencing systems and guidance on planning and writing their reports.

2.4 Section D

This section provides an opportunity to record additional relevant information for assessors.

- D1 Any additional information you would like to present which may help in the assessment of the programme, including other relevant documents which are available.
- D2 MASP welcomes constructive feedback on ways in which the accreditation process could be improved/updated.
- D3 Please clarify the programme director, to be named on the IPEM website.
- D4 Please clarify the volunteer assessor, who will not be named on the IPEM website, but whose name will be added to the pool of qualified assessors kept by the MASP. Please bullet point his/her expertise in medical physics and bioengineering for the purposes of best selecting an appropriate assessment centre. S/he will be asked later to complete an application form for our records.

3. THE ASSESSORS' SITE VISIT

3.1. Itinerary suggestions

Typically, the assessors' site visit will take one working day per programme. It is essentially an exercise in discussion and information gathering and should be used as an opportunity to clarify the information on the accreditation document. Where there is more than one programme to be assessed it may well be most convenient for these to be assessed on the same day, with two assessors for each programme.

The assessors will normally be in contact with programme director to arrange a date for the site visit and to determine a suitable itinerary.

The details of the assessors' site visit are the primary responsibility of the individual assessor but the following is a list of possible elements that have proved useful in previous evaluations:

- Discussion of aspects of the programme with as many of the teaching staff as possible.
- Tour of laboratories and other facilities, e.g. clinical centres.
- Private discussion with random selection of current students. If possible, please ask a student representative to arrange which students are available to talk to the assessors.
- Detailed examination of accreditation document with programme organiser and selected staff.
- Inspection of examination and project material, including external examiners' reports and a good selection of project reports.
- Demonstration of how communications skills will be learned (i.e. talk/poster).
- General feedback and discussion with key staff.

The assessors will discuss the proposed programme for the day with the programme director before the visit. They will need to have a private room in which to examine the material provided and to come to their decisions before a final feedback session with key staff.

APPENDIX: GUIDELINES ON COMPENSATION AND CONDONEMENT

When considering the issue of compensation or condonement it is suggested that we follow the Engineering Council's guidelines as far as possible. In many cases these will be in line with the university's rules but, where they differ, assessors are requested to try to ensure that the guidelines below are complied with.

Definitions

The Engineering Council defines compensation as:

"The practice of allowing marginal failure (i.e. not more than 10% below the nominal pass mark) of one or more modules and awarding credit for them, often on the basis of good overall academic performance."

The Engineering Council defines condonement as:

"The practice of allowing students to fail and not receive credit for one or more modules within a degree programme, yet still qualify for the award of the degree."

Guidelines

The guidelines to be used in the consideration of the accreditation of MLAF degree programmes are:

1. Evidence that all MLAF learning outcomes are met by all variants of each programme must be provided before accreditation can be granted.
2. No condonement of modules delivering MLAF learning outcomes is allowed.
3. A maximum of 20 credits can be compensated in a Masters degree programme.
4. Major individual and group-based project modules must not be compensated.
5. The minimum module mark for which compensation is allowed is 10% below the nominal module pass mark (or equivalent if a grade-based marking scheme is used).