5-year Integrated Master of Pharmacy degree (MPharm)

University of Bath
Report of a step 1 accreditation event
January-February 2018
### Event summary and conclusions

<table>
<thead>
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<th>Provider</th>
<th>University of Bath</th>
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<tr>
<td><strong>Course</strong></td>
<td>5-year Integrated Masters of Pharmacy degree (MPharm)</td>
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<td><strong>Event type</strong></td>
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<tr>
<td><strong>Step</strong></td>
<td>1</td>
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<td><strong>Event date</strong></td>
<td>31 January - 1 February 2018</td>
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<td><strong>Accreditation period</strong></td>
<td>Working towards accreditation: the next visit is due 2019/20</td>
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<td><strong>Outcome</strong></td>
<td>The accreditation team agreed to recommend to the Registrar of the General Pharmaceutical Council that the 5-year integrated pre-registration MPharm degree proposed at the University of Bath should be permitted to progress from step 1 to step 2 of the MPharm accreditation process subject to one condition. This means that the University may transfer students from the existing 4-year MPharm degree, and that new students may be admitted to first year of the programme for the coming academic year (2018/19). The team recognised that some aspects of this 5-year MPharm degree are still in development but agreed that the plans have progressed sufficiently. Step 2 will take place in the latter part of the 2019/20 academic year. It must also be ensured that all information provided for prospective students regarding the different MPharm degrees offered by the University of Bath is clear about the course requirements and potential outcomes. The team looks forward to receiving clarification of the exit award (see criterion 1) that will be agreed by Senate.</td>
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<tr>
<td><strong>Conditions</strong></td>
<td>The University must have the contractual agreements with the placement providers in place to ensure the quality and management of pre-registration training placements, and that the students who are being transferred have the opportunity to complete the 5-year MPharm degree; this is to meet standards 2.1b.iii., 8.1a and b. This must be met by June 2018.</td>
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<td><strong>Standing conditions</strong></td>
<td>Please refer to Appendix 1</td>
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<td><strong>Recommendations</strong></td>
<td>No recommendations were made</td>
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<td><strong>Registrar decision</strong></td>
<td>The Registrar of the GPhC accepted the team’s recommendation and approved the progression of the programme from step 1 to step 2 of the GPhC’s accreditation process.</td>
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Introduction

Role of the GPhC

The General Pharmaceutical Council (GPhC) is the statutory regulator for pharmacists and pharmacy technicians and is the accrediting body for pharmacy education in Great Britain. The GPhC is responsible for setting standards and approving education and training courses which form part of the pathway towards registration for pharmacists. The UK qualification required as part of the pathway to registration as a pharmacist is a GPhC-accredited Master of Pharmacy degree course (MPharm). This accreditation event was carried out in accordance with the GPhC’s 2011 MPharm Accreditation Methodology and the course was reviewed against the GPhC’s 2011 education standards ‘Future Pharmacists: Standards for the initial education and training of pharmacists’.

The GPhC’s right to check the standards of pharmacy qualifications leading to annotation and registration as a pharmacist is the Pharmacy Order 2010. It requires the GPhC to ‘approve’ courses by appointing ‘visitors’ (accreditors) to report to the GPhC’s Council on the ‘nature, content and quality’ of education as well as ‘any other matters’ the Council may require.

The powers and obligations of the GPhC in relation to the accreditation of pharmacy education are legislated in the Pharmacy Order 2010. For more information, visit: http://www.legislation.gov.uk/uksi/2010/231/contents/made

Background
The MPharm programme at the University of Bath is delivered by the Department of Pharmacy & Pharmacology, one of seven departments in the Faculty of Science. The programme was last reaccredited in 2016. On that occasion, the accreditation team agreed to recommend to the Registrar of the General Pharmaceutical Council that the University of Bath should be reaccredited to provide an MPharm degree for a further period of six years, with an interim visit to take place in three years; there were no conditions or recommendations. Since then, the University approached the GPhC with a view to providing, additionally, a 5-year MPharm with integrated pre-registration training. The process for accrediting an integrated, five-year degree built upon an established, accredited 4-year programme, comprises four steps, with steps 3 and 4 normally taking place respectively in years 4 and 5 of the programme; the completion of step 4 will also require GPhC representatives to attend the examination board at the end of year 5. Accordingly, a step 1 visit took place in January/February 2018 and this is a report of that event.

Documentation

Prior to the event, the provider submitted documentation to the GPhC in line with the agreed timescales. The documentation was reviewed by the accreditation team and it was deemed to be satisfactory to provide a basis for discussion.

Pre-visit

In advance of the main visit, a pre-visit meeting took place by teleconference on 16 January 2018. The purpose of the pre-visit meeting was to prepare for the event, allow the GPhC and the university to ask any questions or seek clarification, and to finalise arrangements for the visit.

The event

The event began with a private meeting of the accreditation team and GPhC representatives on 31 January 2018. The remainder of the event took place onsite at the University of Bath on 1 February 2018, and comprised a series of meetings with staff of the University and representatives of the organisations that will provide pre-registration training placements.

Declarations of interest

There were no declarations of interest.

Key findings

Standard 1: Patient and public safety

The team was satisfied that all criteria relating to this standard will be met. Criterion 1.1.e requires some modification (See Appendix 2 for criteria)

All students are briefed on the importance of safety, including patient safety, from the beginning of the programme. The initial briefing includes an emphasis on students looking after their own health and wellbeing, not only for their own good but to protect others from harm. The Standards for Pharmacy Professionals document is introduced at the commencement of the programme as a developmental tool to highlight appropriate professional behaviours, and this is reinforced during a small group workshop early in year 1. Students are briefed about the importance of patient safety before their first practice-based experience in the first semester of year 1 and they complete relevant training before their first NHS-based placement in semester 2. Prior to all hospital or community placements, students are provided with a briefing through lectures or workshops, as well as through a workbook; the workbook highlights key safety information relevant to their placement, with reference to the Health and Safety at
Work Act 1974. Students are coached in their responsibilities as student healthcare professionals. For each specific setting, students are given detailed briefings about the activities that will be undertaken and the level of supervision that is required by the placement provider, and how that relates to professional competence; students are always briefed about the limits of their professional competence before all practice placements. Prior to commencement of their pre-registration placements in year 5, year-4 students will have an orientation placement in the premises where they will undertake their first pre-registration training placement. There will also be an induction for their pre-registration training, the content of which will be decided between the University and the placement providers, and the students will also undertake some online learning before commencing the placement. The placement supervisors will be assured that their students can undertake activities effectively and safely with the appropriate level of supervision. If students are not performing at the right level, additional support will be provided. Student pharmacists undertaking practice-based learning are supervised by pharmacists who have visiting appointments and who are familiar with the University’s requirements. Any concerns during a placement would be reported to the Director of Practice-Based Learning or the administrative support team. The University has procedures in place for dealing with cases where a student’s behaviour falls below the standards expected, or where a student’s health may be a cause for concern; these are covered by a student ‘Fitness to Practise’ policy and appropriate disciplinary procedures. Students are informed about the fitness to practise policy before admission and during induction, and are reminded at least annually; student pharmacists must complete annual fitness to practise self-declarations to ensure there are no causes for concern. Should a student pose a risk to patients, the public or to themselves, as demonstrated by their behaviour or mental health, they will not be permitted to graduate with an MPharm degree; this relates to criterion 1.1.e. If they have accumulated sufficient credits, they would instead be awarded a Bachelor of Science in Pharmaceutical Studies which does not make them eligible for registration with the GPhC. Students who pose a risk to patients or the public during year 5, and who have accumulated sufficient credits, similarly will be eligible for the award of a Master in Science in Pharmaceutical Studies; the name of this award is subject to approval by the University Senate and the GPhC will need confirmation once approval has been obtained.

Standard 2: Monitoring, review and evaluation of initial education and training

Criterion 2.1.b.iii is not met and is subject to a condition. The team was satisfied that all other criteria relating to this standard will be met.

The Faculty of Science is responsible for the quality management of the MPharm programme, with advice and support provided by the University’s Centre for Learning and Teaching. The documentation presented by the University provided information on entry requirements, the quality of teaching learning and assessment, the quality of placements and other practice learning opportunities, appraisal and feedback systems for students and trainees and their supervision requirements, as well as information on educational resources and capacity; information was also provided about how these are monitored, reviewed and evaluated systematically and how issues are dealt with. Annual monitoring is a key component of the University’s quality assurance procedures. All modules (units) are evaluated by the relevant student cohort using online questionnaires and the results of these feed into a report generated by the unit convener. Evaluation reports are reviewed by the Departmental Learning Teaching & Quality Committee (DLTQC), which includes student representatives. Other measures of quality taken into consideration include feedback from the staff-student liaison committee, results from the National Student Survey, pass rates in the GPhC registration assessment, and comments from the external examiners. There is a Pharmacy Education Advisory Group (PEAG) which provides strategic advice and guidance on pharmacy education and pharmacy workforce development; this group comprises experienced practitioners, experts and stakeholders from a range of settings.

Practice-based learning occurs in all of the first four years of the MPharm programme, before the integrated pre-registration year; these activities include experiential visits, clinical learning in practice (CLIP – see standard 5) and practice-based placements; in the placements, students undertake structured
activities and develop their professional, ethical and clinical decision-making skills. All practice-based learning has agreed learning outcomes, practice-based activities and post-practice activities, as well as appropriate assessments. Feedback and evaluations are collected from all practice-based learning activities and the reports are reviewed by the Practice-Based Learning Quality Assurance Board (PBL QA Board) chaired by the Director of Practice Based Learning, who is responsible for all aspects of teaching and learning in practice settings. The PBL QA Board reviews all aspects of practice-based learning including feedback and evaluations from students and placement providers. Quality Assurance for the pre-registration programme, which comprises two 6-month placements, one in hospital and one in community pharmacy (see standard 5), will be managed by the Director of Practice-Based Learning under the Quality Assurance Framework of the University. All placements sites will be visited by a member of the programme team and assessed for suitability against set criteria before the placements are approved. Following this, site visits will be carried out every 13 weeks to conduct joint appraisals with students.

Unlike graduates undertaking pre-registration training, the year-5 trainees will remain as students, with strong links to the University; the pre-registration training programme will be developed and supported via the University systems for example, using the virtual learning environment (VLE) and a new e-portfolio, with students having continuity with their University tutors. The providers of the year 5 placements are fully aware that that their students will be continuing their University journey, and that this is different from the established pre-registration training model. The programme will be managed through a tripartite arrangement involving the University, Day Lewis Pharmacy and the hospital partners. A blended learning approach will be used, which will also include appropriate face-to-face activities, and visits by University staff members to students on placements. Equitability of student experience will be achieved through identification of appropriate placements meeting the required standards, as well as from the regular feedback obtained both from the students and their placement supervisors. The Practice-Based Learning Quality Assurance Board will be able to look at practice across all of the placements, including the results from assessments. A further layer of quality assurance will be achieved through the appointment of an additional external examiner, specifically for year 5, who will be an individual with experience of both academic and pre-registration matters.

Health Education England and Day Lewis Pharmacy (currently the sole provider of community pharmacy-based pre-registration training for this programme) have agreed in principle to offer 6-month placements. The next steps will be the development of service level agreements (SLAs), including formalised workplace agreements with specific NHS trusts; placement site visits will take place, appropriate tutors will be identified by the placement providers and approved by the University, and the pre-registration training programme will be developed. Similarly, an SLA will be developed with Day Lewis Pharmacy, suitable pharmacies will be identified and tutors identified by Day Lewis will be approved; the pre-registration training programme will be developed with Day Lewis, and this will incorporate elements of its existing programme. Tutors will receive initial training with annual updates, and there will be bespoke support via the VLE. They will be required to maintain their competence in supporting teaching and learning, and must submit examples of this in their CPD portfolio, mapping these to the GPhC competencies for tutors. The Pre-Registration Programme Lead will oversee assessment, peer review of tutors, and pastoral support, as well as having overall responsibility for quality assurance and feedback. There will be regular site visits to placements. Annual review of tutor performance will be conducted by the Programme Lead and the Director of Practice-Based Learning. If a student were to give unsatisfactory feedback on a tutor, there are mechanisms in place for escalation via the Programme Lead. The Director of Practice-Based Learning will have overall responsibility to ensure that placements can deliver against a standard checklist; these are the same processes as those used currently. Acknowledging that SLAs are in preparation, and understanding the reasons why they have not yet been finalised, the team agreed that it is essential to have contractual arrangements in place in order to assure the quality of the pre-registration training placements. Accordingly, the team imposed a condition that the University must have the contractual agreements with the placement providers in place before the transfer of students from the current programme (see standard 9); this is also to ensure that students who are being transferred will have the opportunity to complete the 5-year MPharm
Standard 3: Equality, diversity and fairness

The team was satisfied that both criteria relating to this standard will be met.

The University has systems and policies for capturing equality and diversity data and for ensuring that students, staff and visitors are treated with equity regardless of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, as well as sex and sexual orientation, as required by the Equality Act (2010). This is overseen by the University’s ‘Equality and Diversity Committee’, which reports directly to both Council and Senate. All departments must report annually on their equality and diversity activities over the past year and indicate how their future plans take account of equality and diversity. The Department has a dedicated ‘Equality and Diversity Coordinator’ who, as a member of the University’s ‘Equality and Diversity Network’ and the Network’s representative on the Equality and Diversity Committee, is the point of contact for staff and students to share any issues related to equality and diversity. The Department holds a silver Athena SWAN award. Staff members are expected to use an online package for training in equality and diversity, and the uptake of this training is monitored by the Head of Department. Regular departmental meetings for all members of staff provide opportunities to raise issues relating to equality and diversity and to share good practice in these matters. The University has a continuing commitment to ensure that its courses are accessible to all who have the ability to benefit from them, and has measures to widen participation; activities are directed at specific groups, such as those from areas with lower participation in higher education, from low income families, refugees and asylum seekers, or who are in care or have a learning difficulty or disability. Support in equality and diversity matters is provided for personal tutors, and this is backed up by central University services. Approval criteria for placement tutors take into account equality and diversity, and online equality and diversity training will form part of their induction. Students will be required to take the online equality and diversity training package that is taken staff members, who also receive unconscious bias training.

Standard 4: Selection of students and trainees

The team was satisfied that all criteria relating to this standard will be met.

All information relating to the MPharm programme required for prospective students to make an appropriate choice is available through the University website. Applicants are informed of the importance of their personal statements on the UCAS application form. The information on the website includes the required school-leaving qualifications, such as A-levels, and the minimum necessary qualifications in mathematics and English language. The University and Department webpages also inform prospective applicants of the requirements to undergo a Disclosure and Barring Service (DBS) check, or, for international students, to present a certificate of good conduct letter, and to provide a written declaration of any medical conditions or disabilities. Detailed information is also provided about ‘fitness to practise’. Initial selection of applicants for interview is undertaken by an administrator within the University’s central admissions office, using criteria established with the MPharm Admissions Tutor; this selection is based on predicted ‘A’-level grades, applicants’ knowledge of the pharmacy profession, and expression of NHS values. Departmental interviews are held on a regular basis throughout the year. Interviews are based on the students’ experiences and NHS values, as well as on their communication skills. Members of academic staff involved in interviewing are briefed on NHS values-based recruitment, and are provided with a series of questions that will allow the interviewer to assess the applicants; new members of the academic and teaching staff are given one-to-one advice by the Admissions Tutor regarding the conduct of interviews. The 5-year integrated MPharm programme will be open only to overseas candidates, the particular target countries being Malaysia, Brunei, Singapore, China (including
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Hong Kong), East Africa, Canada and the Middle East; some of these candidates will be at UK schools studying A-levels and some will be resident overseas. When interviewing overseas students by telephone or Skype, allowances are made for candidates who will not be familiar with the NHS or its values, but candidates will be asked about their knowledge of the profession and about their personal attributes that would make them suitable for a patient-facing career. A selection event for the year-5 preregistration training placements will include employers and will take place during the fourth year; this will make use of multiple mini-interviews. Students will be asked their preferences but selection will be based on performance, although all students will be allocated a placement.

**Standard 5: Curriculum delivery and student experience**

The team was satisfied that all criteria relating to this standard will be met.

The 5-year programme is designed to integrate practice and science, with increasing levels of integration in successive years, culminating in trans-disciplinary integration in year 5. Year 1 provides fundamental science concepts, with years 2 and 3 using a body systems-based approach, with strong, research-led vertical themes in pharmacy practice, pharmaceutics, medicinal chemistry and pharmacology to support integration; these themes run through the full five years of the programme. The body system approach in years 2 and 3 is based around ‘Specialised Integrated Units’ (SIUs), each of which focuses on conditions and groups of conditions affecting one or more organs/systems. Years 3 and 4 each include a module on ‘Medicines optimisation in complex patients’, while years 1-3 each incorporate a year-long ‘Preparing for Professional Practice’ unit, which includes weekly, applied pharmacy skills classes. Incorporation of regular ‘Clinical Learning in Practice’ (CLIP) sessions, where students go out to practice settings, allows them to see patients with the conditions being studied; in addition to CLIP sessions, there are experiential visits and practice placements throughout the first four years; students on the 5-year programme will use a different placement workbook from that use by students on the 4-year programme and their experience will be orientated towards the 76 pre-registration performance standards. The fifth year comprise two, 26-week pre-registration training placements, one in hospital and one in community pharmacy; during these placements, students will be supported by their Pre-Registration Tutors and the Programme Lead, as well as by their University personal tutors. Students will use an electronic portfolio in which to record evidence of how they meet the performance standards as well as the standard 10 outcomes; this portfolio, which is the major assessment in year 5, will be signed off by their placement tutors in collaboration with the University. In addition to placement-based training, students will participate in University-based conferences and will undergo appraisals every 13 weeks; these will be undertaken by the Pre-Registration Tutor jointly with the University tutor, and the 39-week appraisal will determine the students’ readiness to enter the GPhC registration assessment. Inter-professional education (IPE) will be take place throughout the five years of the programme; this includes working with nursing students, medical students and, for year 5 students, F1 doctors. In addition to the final year assessment through the e-portfolio, there will be a variety of formative and summative assessments throughout the first four years, including written examinations and objective, structured clinical examinations (OSCEs). Students will fail assessments if they do or say something which is likely to cause harm, for example, in an OSCE or an applied pharmacy practice skills examination. Such incidents may be referred to a clinical review group which advises the Board of Examiners; this group has patient representation.

**Standard 6: Support and development for students and trainees**

The team was satisfied that the single criterion relating to this standard will be met.

There is a range of support mechanisms for students both at university and departmental level, starting with a departmental induction at the start of the programme; this gives information about the course and provides students with details of key points of contact, including their peer mentors and personal tutors, whom they meet during this period. There is a University web-page portal for all first year students, providing information about the range of services provided by the University, including the
Academic Skills Centre, and information about extra-curricular activities, as well as where to obtain advice, for example, on financial and health matters; there is also support for library skills and careers. Additional support is available for biology, mathematics and statistics. Each student has a personal tutor who provides both pastoral and academic support, and who is a key point of personal contact between the student and the University. Personal tutors meet their tutees as a group, during induction, and at least three times a semester throughout the degree programme. Personal tutors also provide the opportunity to meet tutees individually, for example, to provide end-of-semester assessment feedback. If appropriate, the tutor or the student may also raise matters of concern directly with the Director of Studies or a module lead. Personal tutors are supported in their role by The Senior Tutor, who is responsible for monitoring that scheduled personal tutorials take place. In addition to personal tutors, all first year students are allocated to a second or third year pharmacy student, who is trained for a peer mentoring role by the Students’ Union. The peer mentoring scheme is supervised by the Senior Tutor, who provides ongoing support for mentors and a guide for mentees. The Department also runs a peer-assisted learning (PAL) scheme which is primarily to support students in their applied pharmacy practice skills classes, but can support them in other areas where necessary. During their fifth year, while undertaking their pre-registration training placements, students will receive both pastoral and academic support from the combined efforts of the workplace tutor, their University personal tutors and the Programme Lead. The University tutor will deal with all concerns relating to health or academic matters, as well as concerns relating to the student working with his/her placement tutor. There will be set points of contact during the year, with established routes of communication, and the tripartite relationship of University tutor-student-placement tutor will be established as part of the process. The relationship will be helped by the e-portfolio, to which pre-registration tutors will have various levels of access through their honorary contracts; they may also have full access to their student’s academic records if needed.

Standard 7: Support and development for academic staff and pre-registration tutors

The team was satisfied that all criteria relating to this standard will be met.

There is a University induction programme for all new staff members and the University’s Academic Staff Development Unit offers a programme which focuses on support for all aspects of academic practice. All new staff members are introduced to the University, to the department in which they work, and to their job. A Departmental induction booklet and checklist are available on the Departmental wiki to ensure that new colleagues meet key contacts for their job and understand the Departmental layout and organisation. Those new members of academic staff who are not pharmacists receive an introduction to the roles of key organisations in pharmacy, for example the GPhC and the Royal Pharmaceutical Society; there is a Departmental staff page on Moodle which receives live feeds from these two organisations, and others. A major form of support for staff involved in teaching on the MPharm programme is the University of Bath Course in Enhancing Academic Practice (The Bath Course), which is a work-based learning course, accredited by the Higher Education Academy (HEA), enabling participants to become Associate Fellows or Fellows. This course aims to support and develop skills that enable staff to become confident and reflective practitioners who seek to continue to improve their practice and further develop as professionals in Higher Education. During the course, participants are observed in teaching, normally by their mentor and the Bath Course tutor. Successful completion of the course is the normal probationary/contractual requirement. The Bath Scheme is another process by which staff members can gain national recognition from the HEA for their teaching practice; this scheme allows staff members to reflect upon, and benchmark, their teaching practice against the UK Professional Standards Framework and provides a means of evaluating the quality of teaching and student support at Bath. All members of staff who teach on the MPharm programme have their teaching peer-reviewed once every two years. They also undergo an annual staff development and performance review; this reviews professional behaviours and achievements against the previous year’s objectives, sets objectives for the coming year, and includes a discussion of broader career aims and plans for supporting the professional development and career aspirations of the staff member, for example, training and support needs, as well as addressing workload issues. Staff workload is managed within the four groups (Pharmacology, Medicinal Chemistry, Pharmacy Practice and Pharmaceutics), with the Head of Department and the Director of Teaching being available to advise on workload matters. Central University services provide training and
support for personal tutors. There is an advice helpline, which can also be used by external tutors. External tutors, including those with part-time, honorary appointments, can go on courses and can use the Bath Scheme to gain professional recognition via the HEA. They receive extensive support in developing their teaching skills, which is facilitated through extensive networking. Those tutors who are distant from the University can access online resources. There is also a bespoke training course, although it may be impractical for those tutors working at a distance to attend; their needs can be met through webinars. Pre-registration tutors will receive face-to-face training at the University before placements start; this training will include, among other aspects, the design, delivery and outcomes of the MPharm programme, the role and responsibilities of pre-registration tutors, assessment of competence, the use of the e-portfolio, quality assurance of training sites, and tutor and student evaluation and feedback.

Standard 8: Management of initial education and training

Criterion 8.1.a and 8.1.b are not met and are subject to a condition.

Within the Department, strategy and resources are the responsibilities of the Department Executive chaired by the Head of Department and comprising the Deputy Head, the Champion for Postgraduate Taught Programmes, the Clinical and Industrial Lead, the Undergraduate Admissions Tutor, the Director of Research and the Director of Postgraduate (Taught) Studies in Pharmacy; others, representing specific groups, also occasionally attend meetings of the Department Executive. The management and operational aspect of teaching come under the remit of the Teaching Management Group; this Group includes the Heads of Pharmacology, Medicinal Chemistry and Pharmaceutics, along with the Director of Practice-based Learning, the Director of Postgraduate (Taught) Studies in Pharmacy, and the Senior Tutor, as well as the Director of Studies of Pharmacology, Natural Sciences and Biomedical Sciences. The management of practice-based learning across the whole programme is under the Director of Practice Based Learning, along with a team comprising the IPE Lead, Placement Tutors, Practice Educators and Teacher Practitioners. The Director is responsible for commissioning of placements, resource management, and quality assurance, as well as curriculum design; support for the Director is provided by a Placements Administrator and a Placements Assistant, who are responsible for administration and logistics, monitoring of student attendance, and quality monitoring, and who act as contact points for the students. The team of tutors, practice educators and teacher practitioners is responsible for the design and delivery of the teaching and assessment, and for undertaking evaluation of the placements through obtaining feedback. Starting in the 2018/19 academic session, the team will be joined by a Pre-Registration Programme Lead, a Pre-Registration Administrator, and the Pre-Registration Tutors. When the 5-year programme achieves numerical steady state in 2022/23, the team will be expanded to include a member of academic of staff and an additional Pre-Registration Administrator.

Acknowledging that service level agreements (SLAs) addressing the management and quality assurance of the pre-registration placements are in preparation, and understanding the reasons why they have not yet been finalised, the team agreed that having such contractual arrangements in place is an essential management pre-requisite to ensure that the students who are being transferred from the 4-year MPharm to the new programme will have the opportunity to complete the 5-year MPharm degree. Accordingly, the team imposed a condition that the University must have the contractual agreements with the placement providers in place before the transfer of students from the current programme (see accreditation team’s commentary under 2.1.b and the condition).

Standard 9: Resources and capacity

The team was satisfied that all criteria relating to this standard will be met.

The primary mechanism for securing resources from the University to deliver the MPharm degree is via annual planning. Requests for resources additional to the operating budget, including additional space requirements, additional staff or, for example, increased placement costs, go through this process. The
financial estimates of income and expenditure are recorded and calculated through the Resource Allocation Model (RAM) operated by the University; the RAM also generates estimates for the next five years at Departmental, Faculty and University level. The underlying rationale for the 5-year programme is to reverse the decline in overseas student income resulting from the visa requirements; this income is essential to maintaining the Department’s financial position. International students on an integrated 5-year programme that incorporates pre-registration training will be allowed to qualify and register under a single Tier 4 visa, without the need to obtain a Tier 2 visa for their pre-registration year; the programme is specifically for overseas students, including those already studying in the UK. A ‘4 + 1’ model was chosen, rather than a model in which pre-registration training is spread across years 4 and 5, because of the advantage of spending the full 12-months across two placements in one locality; this will benefit students by allowing them more readily to obtain housing through a single 12-month lease, and will benefit the University through allowing the two placement tutors to work more effectively together in designing an integrated programme aligned to both providers. The Department intends to offer the option of transfer to the 5-year programme to international students currently on the 4-year degree, as well as recruiting 20 students into the first year of the new programme for the 2018/19 academic year; for 2018/19, this would result in 20 students in year 1, and five in each of years 2, 3 and 4, with the year 4 students entering pre-registration training in 2019/20. Accordingly, to support programme development and to set up the first fifth year, the Department will recruit an additional 0.5 FTE academic staff member in 2018/19, as well as allocating an administrator at 0.5 FTE; the new member of academic staff will act as the year 5 University Tutor. By 2022/23 the numbers will have reached steady state and an additional academic staff member (1.0 FTE) and administrator (1.0 FTE) will be recruited in 2021/22 to support the delivery of year 5. Emphasising the importance of the MPharm as a flagship programme of the University, and the University’s desire to maintain the historical large number of international students on this course, the Deputy Vice-Chancellor stated that if it became apparent that additional resource was required, this would be provided by the University. As well as the full-time academic staff including several GPhC registrants, the Department has a team of Teacher-Practitioners who provide a currency of clinical practice in their teaching of MPharm students. There are also four Practice Educators who hold joint appointments with NHS trusts and who are responsible for delivery of Clinical Learning in Practice (CLIP) throughout the first four years of the MPharm; they will be a point of support for the integrated pre-registration year.

As well as the staffing resource, physical resources to support learning are provided at University, Faculty and Departmental levels. A major learning resource is the University Library, which subscribes to a large number of electronic journals and provides access to 90,000 electronic books, all of which are accessible on or off campus; the printed book collection provides multiple copies of all recommended textbooks for MPharm students. The University has invested significantly in technology-enhanced learning including its Moodle virtual learning environment (VLE) to support all teaching. In addition to lecture rooms, teaching and research laboratories and a purpose-built Pharmacy Practice Teaching suite, a new simulation suite is planned for summer 2018; this will convert existing low-quality office space into a large number of multi-purpose rooms that can be used for OSCEs, workshops, and the fourth year pharmacy management simulation, as well as for multiple mini-interviews for admissions.

Standard 10: Outcomes

The team did not review the 58 learning outcomes relating to Standard 10 at this step 1 visit but will address them at later steps of the accreditation process.

Indicative syllabus

The team was satisfied with the School’s use of the Indicative Syllabus to inform its curriculum.
The team agreed that the MPharm degree met the requirements of Directive 2005/36/EC of the European Parliament and of the Council on the recognition of professional qualifications for the initial education and training of pharmacists.
Appendix 1 - Standing conditions

The following are standing conditions of accreditation and apply to all providers:

1. The record and report include other comments from the team, and providers are required to take all comments into account as part of the accreditation process. The provider must confirm to the GPhC that required amendments have been made.
2. The provider must respond to the definitive version of the record and report within three months of receipt. The summary report, along with the provider’s response, will be published on the GPhC’s website for the duration of the accreditation period.
3. The provider must seek approval from the GPhC for any substantial change (or proposed change) which is, or has the potential to be, material to the delivery of an accredited course. This includes, but is not limited to:
   a. the content, structure or delivery of the accredited programme;
   b. ownership or management structure of the institution;
   c. resources and/or funding;
   d. student numbers and/or admissions policy;
   e. any existing partnership, licensing or franchise agreement;
   f. staff associated with the programme.
4. The provider must produce and submit to the GPhC on an annual basis:
   a. requested data on student numbers and progression and degree awards;
   b. requested information about the extent of human and physical resources it enjoys for the delivery and support of the degree course.
5. The provider must make students and potential students aware that successful completion of an accredited course is not a guarantee of a placement for a pre-registration year or of future employment as a pharmacist.
6. The provider must make students and potential students aware of the existence and website address where they can view the GPhC’s accreditation reports and the timetable for future accreditations.
7. Whenever required to do so by the GPhC, providers must give such information and assistance as the GPhC may reasonably require in connection with the exercise of its functions. Any information in relation to fulfilment of these standing conditions must be provided in a proactive and timely manner.

Appendix 2 – Standards

GPhC standards for the initial education and training of pharmacists

NB. Information that is shaded grey or shown in grey italics is only applicable to those wishing to offer a 5-year MPharm degree with intercalated periods of pre-registration training.

Standard 1: Patient and public safety

1. There must be clear procedures to address concerns about patient safety arising from pharmacy education and training. Concerns must be addressed immediately.

1.1 There must be effective systems in place to ensure that students and trainees:
   1.1.a do not jeopardise patient safety;
   1.1.b only do tasks for which they are competent, sometimes under supervision;
   1.1.c are monitored and assessed to ensure they always practise safely. Causes for concern should be addressed immediately;
1.1.d have access to support for health, conduct and academic issues;
1.1.e must not be awarded an accredited degree or pass pre-registration training if they might pose a risk to patients or the public;
1.1.f understand what is and what is not professional behaviour and are familiar with the GPhC's standards for pharmacy professionals (2017);
1.1.g understand what fitness to practise mechanisms apply to them. All schools of pharmacy must have fitness to practise procedures to deal with student causes for concern;
1.1.h undergo required health and good character checks;
1.1.i understand that it is an offence to impersonate a pharmacist. Pharmacists are registrants of the GPhC.

Standard 2: Monitoring, review and evaluation of initial education and training

2. The quality of pharmacy education and training must be monitored, reviewed and evaluated in a systematic and developmental way.

2.1 There must be systems and policies in place covering:
2.1.a information about roles and responsibilities and lines of accountability;
2.1.b university information on:
   2.1.b.i entry requirements;
   2.1.b.ii the quality of teaching, learning and assessment;
   2.1.b.iii the quality of placements and other practice learning opportunities;
   2.1.b.iv appraisal and feedback systems for students and trainees;
   2.1.b.v supervision requirements;
   2.1.b.vi educational resources and capacity;
   These must be monitored, reviewed and evaluated systematically. When an issue is identified it must be documented and dealt with promptly.
2.1.c pre-registration tutors evaluating trainees. To do this, tutors must have access to reliable evidence about a trainee’s performance. Tutors must be competent to assess the performance of trainees;
2.1.d the quality and development of pre-registration tutors

Standard 3: Equality, diversity and fairness

3. Initial pharmacy education and training must be based on principles of equality, diversity and fairness. It must meet the requirements of all relevant legislation.

3.1 Systems and policies for capturing equality and diversity data. Concerns should be documented, addressed and disseminated;
3.2 Strategies for staff training in equality and diversity

Standard 4: Selection of students and trainees

4. Selection processes must be open, fair and comply with relevant legislation. Processes must ensure students and trainees are fit to practise at the point of selection. Selection includes recruitment and admissions.

4.1 Selection process must give applicants the information they need to make an informed application.
4.2 Selection criteria must be explicit. They should include:
   4.2.a meeting academic and professional entry requirements;
   4.2.b meeting English language requirements appropriate to MPharm degree study.
Guidelines issued by English language testing bodies should be followed to ensure that admissions language requirements are appropriate;

4.2.c meeting numeracy requirements;
4.2.d taking account of good character checks, such as Criminal Records Bureau (CRB)/Disclosure Scotland checks;
4.2.e passing health checks (subject to reasonable adjustments being made). Health checks could include self-evaluations and/or evaluations by healthcare professionals;
4.2.f recognising prior learning, where that is appropriate.

4.3 Selectors should apply selection criteria fairly. They should be trained to do this. Training should include equality and diversity matters.

Standard 5: Curriculum delivery and the student experience

5. The curriculum for MPharm degrees and the pre-registration scheme must deliver the outcomes in Standard 10. Most importantly, curricula must ensure students and trainees practise safely and effectively. To ensure this, pass criteria must describe safe and effective practice.

5.1 Curricula must be integrated.
5.2 Curricula must be progressive, dealing with issues in an increasing more complex way until the right level of understanding is reached.
5.3 An MPharm must be delivered in an environment which places study in a professional and academic context and requires students to conduct themselves professionally. Pre-registration training must be delivered in a professional environment which requires trainees to conduct themselves professionally.
5.4 An MPharm must be delivered in an environment informed by research. This means that whether or not all staff are engaged in research, their teaching must be informed by research.
5.5 An MPharm degree teaching and learning strategy must set out how students will achieve the outcomes in Standard 10. Learning opportunities must be structured to provide:
5.5.a an integrated experience of relevant science and pharmacy practice;
5.5.b a balance of theory and practice;
5.5.c independent learning skills.
5.6 The MPharm degree curriculum must include practical experience of working with patients, carers and other healthcare professionals. Practical experience should increase year on year.
5.7 There must be a clear assessment strategy for the MPharm degree. Assessment methods must measure the outcomes in Standard 10.
5.8 The MPharm degree assessment strategy should include:
5.8.a diagnostic assessments;
5.8.b formative assessments;
5.8.c summative assessments;
5.8.d timely feedback.
5.9 Academic regulations must be appropriate for a degree that is both academic and professional and may lead to further professional training. As a general principle, all assessments must be passed. This means that condonation, compensation, trailing, extended re-sit opportunities and other remedial measures should be extremely limited, if they are permitted at all. MPharm degree academic regulations may be more stringent than university norms. This may include higher than usual pass marks for assessments demonstrating knowledge and skills essential to safe and effective pharmacy practice.
5.10 Marking criteria must be used for all assessments and all pass criteria must reflect safe and effective practice.
5.11 Patient safety must be paramount in assessments: any evidence of an assessment demonstrating unsafe practice must result in failure.
5.12 A pre-registration training plan must describe how the learning outcomes for pre-registration will be delivered.

5.13 A pre-registration training plan must describe all assessments, including tutor evaluations and tutor sign-offs.

**Standard 6: Support and development for students and trainees**

6. Students and trainees must be supported to develop as learners and professionals during their initial education and training.

6.1 A range of mechanisms must be in place to support students and trainees to develop as learners and professionals.

**Standard 7: Support and development for academic staff and pre-registration tutors**

7. Anyone delivering initial education and training should be supported to develop in their professional roles.

7.1. There must be a range of mechanisms in place to support anyone delivering initial education and training to develop in their role.

7.2. Induction programmes are provided for and university staff as appropriate. This should include induction programmes for non-pharmacists working on MPharm degrees.

7.3. Everyone involved in delivering the curriculum should have:
   - 7.3.a effective supervision;
   - 7.3.b an appropriate and realistic workload;
   - 7.3.c effective personal support;
   - 7.3.d mentoring;
   - 7.3.e time to learn;
   - 7.3.f continuing professional development opportunities.

7.4. Tutors should have an identified source of peer support.

**Standard 8: Management of initial education and training**

8. Initial pharmacist education and training must be planned and maintained through transparent processes which must show who is responsible for what at each stage.

8.1. All education and training will be supported by a defined management plan with:
   - 8.1.a a schedule of responsibilities
   - 8.1.b defined structures and processes to manage the delivery of education and training

**Standard 9: Resources and capacity**

9. Resources and capacity are sufficient to deliver outcomes.

9.1 There must be:
   - 9.1.a robust and transparent mechanisms for securing an appropriate level of resource for delivering an accreditable MPharm degree;
   - 9.1.b sufficient staff from relevant disciplines to deliver the curriculum to students and trainees. Staff must be appropriately qualified and experienced. The staffing profile must include:
     - 9.1.b.i sufficient numbers of pharmacists – registrants of the GPhC – with experience of teaching in higher education to ensure that an MPharm
degree can produce students equipped to enter pharmacist pre-registration training in Great Britain.

9.1.b.ii sufficient numbers of pharmacists to act as tutors and professional mentors at university and in pre-registration. Not all personal tutors must be pharmacists.

9.1.b.iii pharmacists who are leaders in the profession and in their university, who can influence university policy relevant to pharmacy

9.1.b.iv non-pharmacist academics who can influence school and university policy relevant to pharmacy

9.1.b.v staff who are sufficiently experienced to supervise research. It would be unusual for anyone to supervise research at a particular level unless they had researched to that level or beyond. New research supervisors must be mentored and signed off as being fit to supervise after a period of mentoring

9.1.b.vi science academics who understand the relevance of their discipline to pharmacy and deliver their area of expertise in a pharmaceutical context

9.1.b.vii academic pharmacists and other experienced MPharm degree staff who are able to act as mentors to non-pharmacist colleagues

9.1.c pre-registration tutors who meet the GPhC’s standards for pre-registration tutors;

9.1.d career pathways in universities for all staff teaching on MPharm degrees, including pathways for practice staff

9.1.e clear lines of authority and responsibility for the strategic organisation and day-to-day management of placements

9.1.f training and ongoing support for all non-pharmacists involved in the delivery of MPharm degrees which must help them understand:

9.1.f.i help and understand the relevance of their work to pharmacy

9.1.f.ii how to deliver their area of expertise in a pharmaceutical context

9.1.g appropriate learning resources

9.1.h accommodation and learning resources that are fit for purpose

9.1.i pre-registration premises which meet the GPhC’s standards for pre-registration premises

Standard 10: Outcomes

10.1 Expectations of a pharmacy professional

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>MPharm</th>
<th>Pre-reg</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1.a</td>
<td>Recognise ethical dilemmas &amp; respond in accordance with relevant codes of conduct and behaviour</td>
<td>Shows how</td>
</tr>
<tr>
<td>10.1.b</td>
<td>Recognise the duty to take action if a colleague’s health, performance or conduct is putting patients or public at risk</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.1.c</td>
<td>Recognise personal health needs, consult and follow the advice of a suitably qualified professional, and protect patients or public from any risk posed by personal health</td>
<td>Does</td>
</tr>
<tr>
<td>10.1.d</td>
<td>Apply the principles of clinical governance in practice</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.1.e</td>
<td>Demonstrate how the science of pharmacy is applied in the design and development of medicines and devices</td>
<td>Shows how</td>
</tr>
<tr>
<td>10.1.f</td>
<td>Contribute to the education and training of other members of the team, including peer review and assessment</td>
<td>Shows how</td>
</tr>
<tr>
<td>10.1.g</td>
<td>Contribute to the development of other members of the team through coaching and feedback</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.1.h</td>
<td>Engage in multidisciplinary team working</td>
<td>Knows how</td>
</tr>
</tbody>
</table>
10.1.i Respond appropriately to medical emergencies, including provision of first aid

Knows how Shows how

10.2 The skills required in practice

10.2.1 Implementing health policy

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>MPharm</th>
<th>Pre-reg</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2.1.a Promote healthy lifestyles by facilitating access to and understanding of health promotion information</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.1.b Access &amp; critically evaluate evidence to support safe, rational &amp; cost effective use of medicines</td>
<td>Shows how</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.2.1.c Use the evidence base to review current practice</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.1.d Apply knowledge of current pharmacy-related policy to improve health outcomes</td>
<td>Knows how</td>
<td>Shows how</td>
</tr>
<tr>
<td>10.2.1.e Collaborate with patients, the public and other healthcare professionals to improve patient outcomes</td>
<td>Knows how</td>
<td>Shows how</td>
</tr>
<tr>
<td>10.2.1.f Play an active role with public and professional groups to promote improved health outcomes</td>
<td>Knows how</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.2.1.g Contribute to research &amp; development activities to improve health outcomes</td>
<td>Knows how</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.2.1.h Provide evidence-based medicines information</td>
<td>Shows how</td>
<td>Does</td>
</tr>
</tbody>
</table>

10.2.2 Validating therapeutic approaches and supplies prescribed and over-the-counter medicines

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>MPharm</th>
<th>Pre-reg</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2.2.a Identify and employ the appropriate diagnostic or physiological testing techniques in order to promote health</td>
<td>Knows how</td>
<td>Shows how</td>
</tr>
<tr>
<td>10.2.2.b Identify inappropriate health behaviours and recommend suitable approaches to interventions</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.c Instruct patients in the safe and effective use of their medicines and devices</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.d Analyse prescriptions for validity and clarity</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.e Clinically evaluate the appropriateness of prescribed medicines</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.f Provide, monitor and modify prescribed treatment to maximise health outcomes</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.g Communicate with patients about their prescribed treatment</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.h Optimise treatment for individual patient needs in collaboration with the prescriber</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.i Record, maintain and store patient data</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.2.j Supply medicines safely and efficiently, consistently within legal requirements and best professional practice. NB This should be demonstrated in relation to both human and veterinary medicines.</td>
<td>Shows how</td>
<td>Does</td>
</tr>
</tbody>
</table>

10.2.3 Ensuring safe and effective systems are in place to manage risk inherent in the practice of pharmacy and the delivery of pharmaceutical services

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>MPharm</th>
<th>Pre-reg</th>
</tr>
</thead>
</table>

### 10.2.3.a Ensure quality of ingredients to produce medicines and products
- Knows how
- Shows how

### 10.2.3.b Apply pharmaceutical principles to the formulation, preparation and packaging of products
- Shows how
- Shows how

### 10.2.3.c Verify safety and accuracy utilising pharmaceutical calculations
- Does
- Does

### 10.2.3.d Develop quality management systems including maintaining appropriate records
- Shows how
- Shows how

### 10.2.3.e Manage and maintain quality management systems including maintaining appropriate records
- Shows how
- Does

### 10.2.3.f Procure and store medicines and other pharmaceutical products working within a quality assurance framework
- Knows how
- Does

### 10.2.3.g Distribute medicines safely, legally and effectively
- Knows how
- Does

### 10.2.3.h Dispose of medicines safely, legally and effectively
- Knows how
- Does

### 10.2.3.i Manage resources in order to ensure work flow and minimise risk in the workplace
- Knows how
- Shows how

### 10.2.3.j Take personal responsibility for health and safety
- Does
- Does

### 10.2.3.k Work effectively within teams to ensure safe and effective systems are being followed
- Knows how
- Does

### 10.2.3.l Ensure the application of appropriate infection control measures
- Shows how
- Does

### 10.2.3.m Supervise others involved in service delivery
- Knows how
- Does

### 10.2.3.n Identify, report and prevent errors and unsafe practice
- Shows how
- Does

### 10.2.3.o Procure, store and dispense and supply veterinary medicines safely and legally
- Knows how
- Knows how

### 10.2.4 Working with patients and the public

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>MPharm</th>
<th>Pre-reg</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2.4.a Establish and maintain patient relationships while identifying patients’ desired health outcomes and priorities</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.4.b Obtain and record relevant patient medical, social and family history</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.4.c Identify and employ the appropriate diagnostic or physiological testing techniques to inform clinical decision making</td>
<td>Knows how</td>
<td>Shows how</td>
</tr>
<tr>
<td>10.2.4.d Communicate information about available options in a way which promotes understanding</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.4.e Support the patient in choosing an option by listening and responding to their concerns and respecting their decisions</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.4.f Conclude consultation to ensure a satisfactory outcome</td>
<td>Shows how</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.4.g Maintain accurate and comprehensive consultation records</td>
<td>Shows</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.4.h Provide accurate written or oral information appropriate to the needs of patients, the public or other healthcare professionals</td>
<td>Shows</td>
<td>Does</td>
</tr>
</tbody>
</table>

### 10.2.5 Maintaining and improving professional performance

<table>
<thead>
<tr>
<th>Learning outcome</th>
<th>MPharm</th>
<th>Pre-reg</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2.5.a Demonstrate the characteristics of a prospective professional pharmacist as set out in relevant codes of conduct and behaviour</td>
<td>Does</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.5.b Reflect on personal and professional approaches to practice</td>
<td>Does</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.5.c</td>
<td>Create and implement a personal development plan</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.5.d</td>
<td>Review and reflect on evidence to monitor performance and revise professional development plan</td>
<td>Does</td>
</tr>
<tr>
<td>10.2.5.e</td>
<td>Participate in audit and in implementing recommendations</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.2.5.f</td>
<td>Contribute to identifying learning and development needs of team members</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.2.5.g</td>
<td>Contribute to the development and support of individuals and teams</td>
<td>Knows how</td>
</tr>
<tr>
<td>10.2.5.h</td>
<td>Anticipate and lead change</td>
<td>Knows how</td>
</tr>
</tbody>
</table>

**Appendix 3 – Indicative syllabus**

It is expected that education providers will use the indicative syllabus to develop a detailed programme of study which will enable pharmacists to meet the learning outcomes.

**A1.1 How medicines work**

**Therapeutics**
- Routes of administration
- New therapeutic advances
- Infection control
- Complementary therapies
- Clinical therapeutic uses of drugs

**Applied Physical, Chemical and Biological sciences**
- Sources and purification of medicinal substances
- Physicochemical characteristics of drugs and biological systems
- Thermodynamics and chemical kinetics
- (Bio)Analytical principles and methods
- Drug design and discovery
- Cell and molecular biology
- Biochemistry
- Genetics
- Microbiology
- Immunology
- Pharmaceutical chemistry
- Drug identification
- Drug synthesis

**Pharmacology, pharmacokinetics & pharmacodynamics**
- Contraindications, adverse reactions and drug interactions
- ADME
- Prediction of drug properties
- Pharmacogenetics and pharmacogenomics
- Drug and substance misuse
- Clinical toxicology and drug-over-exposure
- Molecular basis of drug action
- Metabolism

**Pharmaceutical technology including manufacturing & engineering science**
- Biotechnology
- Manufacturing methods
- Quality assurance processes
- Sterilisation and asepsis
- Environmental control in manufacturing

**Formulation and material science**
- Materials used in formulations and devices
- Biopharmaceutics, developmental pharmaceutics, pre-formulation and formulation studies
- Design and standardization of medicines
- Microbiological contamination
- Contamination control
- Product stability
- Medical devices

**A1.2 How people work**

**Normal & abnormal structure & function**
- Nutrition
- Physiology
- Pathology
- Infective processes

**Sociology**
- Social and behavioural science

**Health psychology**
- Health promotion
- Disease prevention
- Behavioural medicine

**Objective diagnosis**
- Differential diagnosis
- Symptom recognition
- Diagnostic tests

**Epidemiology**
- Aetiology and epidemiology of (major) diseases

**A1.3 How systems work**

**Healthcare management**
- Public health
- Organisations: NHS, DH, govt priorities
- Other professionals
- Health care systems

**Evidence-based practice**
- Health information systems/ resources
- Health policy and (pharmaco)economics

**Professional regulation**
- Legislation
• Professional ethics and fitness to practise
• Sale and supply of medicines
• CPD
• Political and legal framework

Medicines regulation
• Evaluation and regulation of new drugs and medicines
• Pharmacopoeial specifications and biological standards
• Medicines licensing
• Product quality, safety and efficacy
• The supply chain
• Packaging, labelling and patient information

Clinical governance
• SOPs
• Research methodology / research ethics
• Risk & quality management
• Good manufacturing/dispensing practice
• Good clinical practice
• Health policy, clinical and science research methods

Clinical management
• Disease management
• Chronic medicines management
• Medicines use review
• Care planning

Workplace Regulation
• Health & Safety
• Sexual boundaries
• Independent Safeguarding Authority
• Data protection
• FOIA
• Consumer protection incl. complaints procedures

A1.4 Core and transferable skills

Professionalism

Research and research methods

Critical appraisal
• Audit and learning from errors

Problem solving
• Study skills
• Team-working skills

Clinical decision making
• Leadership skills

Accurate record keeping
Reflective practice (incl. continuing professional development)

Effective communication
- Interpersonal skills
- Medical terminology

Interpret & interrogate clinical data

Analyse & use numerical data

Pharmaceutical numeracy

Technological literacy

A1.5 Attitudes and values

See the GPhC Code of Conduct for pharmacy students (2010) and Standards of conduct, ethics and performance (2010)