University of the
West of England

BRISTOL

POSTGRADUATE MODULAR PROGRAMME

MSc Medical Ultrasound

PROGRAMME SPECIFICATION

Original validation 2003

University of the West of England

Programme Specification

Section 1: Basic Data   Version 4

Programming institution/body	University of the West of England
Teaching institution	University of the West of England
Faculty responsible for programme	Health and Life Sciences School of Health and Social Care
Programme accredited by	Consortium for the Accreditation of Sonographic Education (CASE)
Highest programme title	MSc Medical Ultrasound
Default programme title	N/A
Interim programme title	PG Certificate in Medical Ultrasound PG Diploma in Medical Ultrasound
Modular Scheme title (if different)	Post Qualifying Framework
UCAS code (or other coding system if relevant) **Relevant QAA subject benchmarking group(s)** **On-going/valid until* (*delete as appropriate/insert end date)** **Valid from (insert date if appropriate)**	01 September 2011

Authorised by…   **Date:…**

Version Code

For coding purposes, a numerical sequence (1, 2, 3 etc.) should be used for successive programme specifications where 2 replaces 1, and where there are no concurrent specifications. A sequential decimal numbering (1.1; 1.2, 2.1; 2.2 etc) should be used where there are different and concurrent programme specifications

Section 2: Educational aims of the programme

Programme Specific Aims

The aims of this programme are to produce a competent autonomous ultrasound practitioner with the:-

- ability to assimilate complex theories so that an informed knowledge base can enlighten practice
- proficient skills to practice medical ultrasound in a safe, competent, and professional manner;
- appropriate interpersonal skills to enable effective interaction with users and multi-professional groups;
- necessary skills to communicate the findings of the ultrasound examination, whilst working within an ethical, legal and professional framework;
- ability to integrate and evaluate a range of professional issues within a framework of effective, rational decision making;
- ability to critically evaluate the contribution of ultrasound to the overall management of the patient;
- opportunity to apply this knowledge in a reflective and critical manner to their practice, with consideration of technical, clinical and ethical issues;
- ability to actively challenge, and critically evaluate current practice as a result of a knowledge of the evidence that represents best practice;
- cognitive abilities commensurate with study at Masters level;
- investigative skills to underpin research or problem solving in ultrasound practice.
- ability to critically analyse their own contribution to the practice of ultrasound, including a consideration of personal career aspirations

Section 3: Learning outcomes of the programme

The programme route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas: …

A Knowledge and understanding

Learning outcomes

Teaching, Learning and Assessment Strategies

A Knowledge and understanding of:

Graduates from this programme will have an in-depth knowledge and broad-based understanding of:

1. The physical, clinical and life sciences which underpin the practice of ultrasound

2. The medico-legal, professional and ethical frameworks within which they practice

3. The implications of research-based evidence used to inform and guide practice

4. The efficacy of various scanning protocols, techniques and equipment which may be utilised

Teaching/learning methods and strategies:

Throughout, the learner is encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.

Acquisition of skills 1- 4 is facilitated by enquiry through, and within, clinical practice, on-line learning and group discussions. In addition, skills 1-4 are acquired through action learning sets. Student led seminars will promote these skills further by the sharing of experience and ideas in a multi-professional forum.

Assessment

Testing of the knowledge base and understanding in written assignments (1 - 4), part seen written examinations (2 - 4), and presentations (1- 4). In addition practice based assessments and formative OSCEs will provide evidence of the application of these skills to clinical practice (1- 4).

B Intellectual Skills

B Intellectual Skills

Graduates from this programme should demonstrate in breadth and depth:

1. The capacity for enquiry, inductive and deductive reasoning and critical analysis

2. The ability to demonstrate independent learning and contribute to peer learning and support

3. A creative approach to learning and begin to contribute to new developments in theory and practice

4. The ability to disseminate and communicate ideas and findings

5. The ability to evaluate a wide range of research strategies that are appropriate to the field of medical ultrasound

6. The ability to synthesise information from a number of sources in order to gain a coherent understanding of theory and practice

Teaching/learning methods and strategies

Intellectual skills are developed through:-

Student - led seminars, group work, and the sharing of ideas through experience of the clinical practice of ultrasound in the work place (1- 6).

Facilitative strategies, including Action Learning Groups, problem based learning to promote the development of skills (1- 3, 5, 6).

Skills 1, 4, 6 will be developed by report writing workshops, and clinical practice undertaken by students, with suitably trained appraisers as resources. Individual and group presentations, both oral and paper-based (2 - 4, 6).

Skills 1, 2, 5, & 6 will be facilitated by on-line learning

Assessment

A full range of assessment methods are employed. The learner's ability to demonstrate skills 1 - 6 are assessed through formative OSCEs, (1, 3, 4, 6) written assignments and course work (1 - 6), clinical portfolios, and practice-based assessment (1- 6).

C Subject, Professional and Practical Skills

C Subject/Professional/Practical Skills

Graduates from this Programme should demonstrate the ability to:

1. Undertake skilled competent, safe, evaluative and reflective medical ultrasound within a legal and ethical context

2. Optimise, manipulate and evaluate diagnostic images, or data, in a critical manner

3. Communicate effectively with both users, interprofessional groups and the general public establishing professional and ethical relationships

4. Utilise appropriate strategies in order to solve problems that may be complex in nature

5. Make evaluative judgements on the outcomes of an ultrasound examination and report the findings accordingly

6. Recognise and take appropriate action in situations where the limits of their skill or knowledge are being approached (cognisance).

Teaching/learning methods and strategies

Skills 1- 6 are learnt in through enquiry within clinical practice through key lectures and work-based learning. Students are expected to manage own clinical learning by using action plans, reflective practice and clinical portfolios, and formative use of clinical assessment tool.

Additionally, skills 3 - 5 and 6 will be developed by group discussions and workshops.

Experience from relevant clinical practice will facilitate reflective, critical, and evaluative skills. This will provide the students with opportunity to enhance decision making and report writing skills

Assessment

All skills (1- 6) will be assessed both formatively and summatively by practice based assessments, where postgraduate students will be required to demonstrate the knowledge and skills to practice in a safe and competent manner.

In addition, clinical portfolio will provide evidence of development of reflective practice and culture for lifelong learning.

Skills 3 - 5 will be assessed by formative OSCEs, which challenge the student in skills in report writing, problem solving, making informed judgements on outcomes of ultrasound examinations.

D Transferable Skills and other attributes

D Transferable skills and other attributes

Graduates from this programme should be able to:

1. Extract, evaluate, synthesise and present information gained from primary and secondary sources (critical thinking)

2. Manage and resolve complex issues in a variety of theoretical and practical situations

3. Reflect and evaluate their own academic, professional and clinical performance

4. Manage time and prioritise workloads, and recognise and manage personal emotions and stress

5. Exercise autonomy in the management of their learning and Continuing Professional Development

6. Manage change effectively and respond to changing demands

7. Use Information Technology competently and effectively to support both academic studies and ultrasound practice.

Teaching/learning methods and strategies

Skills 1- 6

Use of peer group discussion as a mechanism to share and challenge ideas.

Student led seminars to share their own management and learning in an interprofessional forum. Formative use of clinical assessment documentation and learning contracts to facilitate reflection of clinical practice. Use of Action Learning sets to facilitate negotiated study and practice.

Skills 1- 7 acclaimed through engagement in clinical practice and formative electronic OSCEs (e-OSCEs) to facilitate interpretation of ultrasound images, problem solving and report writing. In addition, skill 7 can be developed by use of electronic media and research of appropriate database for current literature for critical review within the group. Literature searching skills are developed across the programme.

Assessment

Formative e-OSCEs examinations to test ultrasound "interpretational" skills, problem solving and report writing in clinical practice (skills 1, 2, 7).

Clinical portfolio and clinical appraisals – test competency, knowledge, understanding, reflective practice, anatomy and time management in practice, managing change and effective use of resources. (Skills 2 - 4, 6, 7).

In addition, Skills 1 - 3, 7 will be assessed with written assignments.

Section 4: Programme structure

The original PG Dip/PG Cert Medical Ultrasound programme was validated in 2000 and this was followed by a further validation of the MSc Medical Ultrasound in 2003. The programme content has been updated annually to reflect current knowledge development and contemporary practice. The programme was further developed in September 2007 to increase the flexibility of the course, and to enable students to study a wider range of subject specialty areas. Students have the ability to negotiate with the programme and module leader, the area of study most appropriate for their needs. There is a recognition of the core professional issues required by students in each speciality area and in order to enhance the student educational experience, all students studying on the ultrasound clinical modules will be taught together, as a multi professional group, for approximately 20 hours of the module to develop their understanding of core theoretical issues within an interprofessional forum.

Pattern of attendance:

Students undertaking this programme will do so if they are able to assure the programme leader of their ability to complete a minimum of 2 days (or 15 hours) per week in practice throughout the duration of the professional practice modules. Exceptionally, students with irregular patterns of work must assure the programme leader of their ability to complete 304 hours of practice over one academic year (each 40 credit professional practice module equates to 400 notional hours of student effort. Of these 400 hours, a maximum of 96 hours will be given to theoretical sessions and the remainder will be spent learning in practice). The commitment for this undertaking is endorsed by the student's manager in the learning contract. This situation is monitored on a regular basis through regular review meetings with the appraiser and student, and recorded in the negotiated statements. These mechanisms will help to ensure postgraduate students gain the requisite clinical experience. The programme team is also able to monitor the situation and intervene, where required. The programme team has successfully operated this system since the inception of the first ultrasound course, and it has been shown to work well.

	Section 4: Programme structure		**MSc Medical Ultrasound Pathway**
Year 1	**Core Compulsory module** • Ultrasound Technology UZYRL6-20-M	**Core Optional modules** Students must take one of the following: • General Medical Ultrasound in Practice UZYRLG-40-M • Obstetric Ultrasound UZYRSD-40-M • Negotiated Specialist Ultrasound Practice 1 UZYRLK-40-M OR 40 credits from: • Negotiated Specialist Ultrasound Practice 3 UZYS9Y-20-M AND • Negotiated Specialist Ultrasound Practice 4 UZYSA3-20-M OR • Negotiated Specialist Ultrasound Practice 5 UZYSJY-20-M	**Interim Award:** **PG Certificate Medical Ultrasound** • Credit requirements **60 at level M** **Students must complete the module UZRYL6-20-M plus 40 credits from the list of core optional modules as described to be eligible to claim the interim award of Post Graduate Certificate Medical Ultrasound**

Students who undertake both 20 credit Negotiated Specialist Ultrasound modules in year 1 **MUST** undertake a 40 credit practice module in year 2.

	Core compulsory modules • Health and Social Care Research: Methods and Methodologies UZWRGQ-20-M	**Core Optional modules** Students must take one of the following: • General Medical Ultrasound in Practice UZYRLG-40-M • Obstetric Ultrasound in Practice UZYRSD-40-M • Negotiated Specialist Ultrasound Practice 2 UZYS9X-40-M	**Interim Award:** **PG Diploma Medical Ultrasound** • Credit requirements 60 credits at level M plus PG Cert **Total 120 credits at level M** **Students must complete the module UZRYL6-20-M and UZWRGQ-20-M plus 40 credits from the list of core optional modules as described to be eligible to claim the interim award of Post Graduate Certificate Medical Ultrasound**
Year 2			

Students who have taken both 20 credit Negotiated Specialist Ultrasound modules in year 1 will not be able to use these modules in year 2 and will need to undertake one of the 40 credit core optional modules listed above.

Students who have **not** completed UZYSA3-20-M or UZYS9Y-20-M Negotiated Specialist Ultrasound Practice module in the first year may choose to do so in Year 2. Students **may** also undertake an additional 20 credits from the optional modules list below.

	Core compulsory modules	**Optional modules**	**Target programme**
Year 3	Either • Dissertation UZWS4W-60-M Or • Dissertation UZWS4V-40-M Students taking the 40 credit Dissertation module UZWS4V-40-M must take a further 20 credits from the optional list to be eligible for the award.	• Legal and Ethical Issues and Dilemmas in Health and Social Care UZYRL8-20-M • Health Promotion Theory and Practice UZFRF5-20-M • Independent Study UZYRLC-20-M • Leadership and Change UZVRQW-20-M • Applied Pharmacology UZTRBA-20- M • Evidencing Work Based Learning 4 UZYRLD-20-M • Clinical Examination Skills for Advanced Practice UZWRH7-20-M • Communication Skills in Cancer and Palliative Care UZTR7R-20-M • Negotiated Specialist Ultrasound Practice 3 UZYS9Y-20-M • Negotiated Specialist Ultrasound Practice 4 UZYSA3-20-M	**MSc Medical Ultrasound** • Total credit requirements **180 credits at level M**

Section 5: Entry requirements

The normal entry requirement is a first degree from a recognised institution of higher education or its equivalent in a relevant subject area. This will constitute standard entry into the programme

We also welcome applicants from a diverse range of backgrounds who do not have the entry requirements outlined above. The University will consider applicants on the basis of evidence of personal, professional and educational experience which indicates an applicant's ability to meet the demands of a postgraduate degree programme.

Applicants with non-standard entry criteria will also be considered on an individual basis. This will take the form of an interview and submission of written evidence. Students whose health and/or social care role requires them to undertake masters level study must demonstrate sufficient ability to achieve M level academic criteria.

Applicants must be eligible for registration by their respective UK regulatory body eg HPC, GMC, NMC.

Course requirements:

- Access to an appropriate clinical area in order to fulfil the practice requirements of this programme.
- Commitment from manager to support clinical learning
- An appropriately qualified individual who will act as clinical appraiser (supervisor and assessor)

Desirable:

- Previous ultrasound experience is highly desirable.

Section 6: Assessment Regulations

Wholly in accordance with Academic regulations and Procedures

Section 7: Student learning: distinctive features and support

Learning is based on an androgogic/student-centred approach, where the students are encouraged and empowered to take responsibility for their own learning. Active research, exploration, feedback and teamwork, case study presentations are expected in all aspects of the programme, and will develop skills such as critical analysis, autonomy, communication, problem solving and reflection.

Key lectures from experts within specialities in ultrasound are incorporated to encourage the student to consider innovative approaches in clinical practice, and keep abreast of current research.

There is strong inter-professional interaction, with sharing of ideas and experiences to resolve practice and person related health and social care situations. This approach should ultimately enhance responsiveness to the 'service user' perspective and promote the best possible care.

The use of action learning sets will promote group dynamics and team building (theories of collaboration), interprofessional working and problem solving and decision making.

Through self directed learning and the formative use of the unique clinical assessment scheme, learning contracts and negotiated action plans, the student will develop intellectual, professional, practical and report writing skills. The clinical portfolio of evidence during their clinical learning will promote the student to reflect on their clinical learning experiences and develop a culture of reflective practice and life-long learning.

Models for e-learning, e-portfolios and e-OSCEs have been developed for integration into most modules. This reflects the e-learning strategy of the faculty.

Student support will be offered in a number of ways:

- Through personal tutorials from the programme team – each student will be assigned a personal tutor.
- Through the support of a suitably experienced and trained appraiser, for facilitation, supervision and monitoring of the student's clinical learning.
- Through negotiation of learning contracts and action plans with the appraiser.
- Through regular clinical liaison (link) lecturer visits for student and appraiser support.
- Student Union membership
- An induction programme for all students.
- A policy on student support and guidance.
- Provision of University, Faculty, Programme and Module handbooks.
- Through Module and Programme leaders.
- Access to faculty student support systems.
- The provision of on-demand workshops on literature searching skills.

The programme team will liaise with students and their employers to determine the choice of dissertation module and the topic.

Section 8 Reference points/benchmarks

- *Subject benchmarks (QAA Unit …)*

  The design of the clinical assessment documentation for all professional practice modules has been based on the National Occupational Standards for Diagnostic Ultrasound of the College of Radiographers.

- S*taff research projects:*

  The role of transvaginal ultrasound in detecting endometrial pathology
  Work-related musculoskeletal disorder in medical ultrasound practitioners
  Ultrasound assessment of arterial grafts
  Protocols for the investigation of Tissue Wall Motion
  Fistulae failure rates
  Monitoring of patients with rotator cuff injury
  Measurement of transversus abdominus muscle using ultrasound imaging
  Fetal medicine and high risk pregnancy
  Electronic assessment of postgraduate ultrasound students
  Ultrasound assessment of vertebro-basilar insufficiency during rotation of cervical spine
  Gynaecological oncological surveillance

- *employer interaction/feedback:*

The Programme Management Committee meets at least twice during each academic year. Opportunities are available for responses from stakeholders at the meeting, and for the past six years these have all been very positive. In addition, employers, clinicians and students have opportunities to influence the programme at all stages.

The programme team has also received positive feedback from the service, via programme and module evaluation forms. The quality of teaching, exemplary course organisation and relationship with external partners have all been commended.   Module evaluation forms completed by students have been complimentary in terms of the organisation and delivery of the course. Favourable comments have also been received regarding the approachability and empathy of the academic staff. Students all appreciated the high calibre of the visiting specialists, and considered this benefited their learning considerably. There have been increasing numbers of students on the course since its original inception. It has been noted that not only is the course receiving applicants from previously used Trusts, but there has also been an increase in the geographical spread of students enrolling on the programme. Furthermore, there is also a rise in the number of applicants already qualified in medical ultrasound who wish to access modules for reasons related to their continuing professional development.

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules can be found in module specifications. These are available on the University Intranet.

Programme monitoring and review may lead to changes to approved programmes. There may be a time lag between approval of such changes/modifications and their incorporation into an authorised programme specification. Enquiries about any recent changes to the programme made since this specification was authorised should be made to the relevant Faculty Administrator.