Birmingham City University
Faculty of Technology, Engineering and the Environment

Postgraduate Programme

Programme Specification

MSc Computer Science

Date of Course Approval/Review	Version Number	Version Date
26 Nov 2009	1.02	18 Dec 2009

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Definitive Documents and Version Control

This document has a version number and reference date in the footer.

The process leading to the introduction of new courses, major changes to courses, and minor changes to courses and modules follows the appropriate formal procedure as described in the Faculty's Academic Procedures and Quality Manual.

On the front sheet of this document, the date of course approval/review refers to the most recent full approval/review event. The version date will be that of the most recent event at which formal consideration was given to course changes.

Further details about the course and document development may be obtained from minutes of the approval or minor changes board. A history of the document since the last full approval/review event is summarised in the table below and further information relating to past versions can be obtained from the Faculty Office.

Version	Event	Date of event	Authorised by
1.01	Approval meeting	26 Nov 2009	Dean of Faculty
1.02	Approval meeting - conditions	26 Nov 2009	Panel Chair

Programme Specification
MSc Computer Science

Date of Publication to Students: September 2010

NOTE: This specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes advantage of the learning opportunities that are provided. More detail on the specific learning outcomes, indicative content and the teaching, learning and assessment methods of each module can be found (1) at https://mytid.bcu.ac.uk/, (2) in the Module Specifications and (3) in the Student Handbook.

The accuracy of the information contained in this document is reviewed by the University and may be checked within independent review processes undertaken by the Quality Assurance Agency.

Awarding Institution / Body:	Birmingham City University
Teaching Institution:	Birmingham City University
Interim Awards and Final Award:	PGCert, PGDip, MSc
Programme Title:	MSc Computer Science
Main field of Study:	Computer Science
Modes of Study:	Full Time/Part Time
Language of Study:	English
UCAS Code:	n/a
JACS Code:	G400

Professional Status of the programme:

The Faculty will seek accreditation of the programme by the British Computer Society (BCS) as satisfying the academic requirements for CITP and CSci/CEng.

Relevant subject benchmark statements and other external reference points used to inform programme outcomes:

- The FHEQ Level Descriptor

- QAA Benchmark statement for Computing

- "Benchmarking Standards for Taught Masters Degrees in Computing", Committee of Professors and Heads of Computing (CPHC) and the British

Computer Society, 2008.

Programme philosophy and aims

The MSc Computer Science provides students with the opportunity to gain in-depth knowledge and skills in a range of advanced topics in computer science. A central theme of the programme is the development of mobile and distributed systems for innovative applications.

The programme is designed for graduates in computer science or related areas, who wish to broaden and deepen their knowledge and learn about developments at the forefront of the subject. It provides a robust grounding in key principles and tools, together with a strong focus on industrial applications, and will provide a foundation for either further research or a career applying leading edge technology in industry.

In addition to mobile and distributed systems, the programme explores advanced issues in software development, web science and data mining. A key aspect of the programme philosophy is that the learning experience integrates use of major commercial software – Cisco (networks and distributed systems), SAS (data mining and business intelligence) – with investigation of the wider theoretical context. Students will also learn about the skills needed to become a successful entrepreneur in the IT sector.

The programme is located within the School of Computing, Telecommunications and Networks, which has delivered a wide range of successful masters courses in computing and computing-related areas for many years and provides a stimulating and supportive learning environment.

The School has close and well-established links with industry, ensuring that the programme remains up-to-date and relevant. The School is home to a leading Cisco academy, which provides training for network professional and instructors throughout Europe, the Middle East and Africa. This has supported the development of a core of staff with exceptional expertise in networks and distributed systems, and outstanding resources and facilities. The School also has close links with SAS.

The School is located within the Faculty of Technology, Engineering and the Environment in the campus at Millennium Point in the heart of Birmingham. Millennium Point was built as a focus for science, technology and education within Birmingham and the wider region and provides an excellent context for exploring advanced technology.

Graduates from the programme will be equipped for careers, including consultancy, requiring high level skills in distributed and mobile systems, web development, software engineering and a range of associated areas in computer science. They will also be able to proceed to a PhD programme.

The aims of the programme are to:

1. Provide a stimulating and rewarding learning experience that will foster the research and independent study skills required at masters level;

2. Develop in-depth knowledge and skills in a range of advanced topics in computer science, with a particular emphasis on mobile and distributed software development;

3. Develop skills of analysis, synthesis, critical appraisal and the ability to solve complex problems:

4. Enable students to critically assess developments at the forefront of the discipline;

5. Promote an awareness of professional, legal and ethical considerations;

6. Enable students to research, manage data, communicate effectively and work as part of a team, to support career advancement.

Intended learning outcomes and the means by which they are achieved and demonstrated:

Learning Outcomes

1. Knowledge and Understanding
On completion of the course, students should be able to demonstrate:

1. A systematic knowledge and understanding of relevant facts, concepts, theories and principles of computer science;

2. An understanding of the key technologies used in mobile and distributed computer systems;

3. Knowledge of emerging trends in computing;

4. An understanding of entrepreneurship in information technology;

5. An awareness of the social, environmental, ethical and regulatory aspects that impinge on the development of computer systems.

2. Intellectual Skills
On completion of the course, students should be able to:

1. Synthesise and critically evaluate approaches to the analysis, modelling and design of computer-based systems;

2. Analyse the requirements for computer-based solutions to complex problems;

3. Critically evaluate techniques and methods for constructing distributed and mobile applications;

4. Systematically evaluate the suitability of a variety of communication environments as a platform on which to build a distributed network of disparate devices;

5. Critically evaluate the role of the entrepreneur in IT;

6. Argue rationally and draw independent conclusions based on a rigorous, analytical and critical approach to systems development.

3. Practical Skills

On completion of the course, students should be able to:

1. Deploy effectively the tools, theories and methodologies used for the specification, design, implementation and documentation of computer based systems;

2. Use computing methods, tools and techniques to solve a range of practical problems;

3. Construct distributed and mobile applications using appropriate technologies;

4. Work effectively as a member of a development team, and undertake management and planning activities, recognising the different roles within a team.

4. Transferable/Key Skills

On completion of the course, students should be able to:

1. Manage learning and self-development, including time management, and prioritise work when tackling and solving complex problems;

2. Communicate effectively in writing, orally and in presentations to specialist and non-specialist audiences;

3. Make effective use of IT, including word and data processing packages, internet and electronic information sources;

4. Systematically research a topic, synthesising and critically evaluating documents from a variety of web-based and traditional sources;

5. In cooperation with others, plan and implement tasks at a professional level and contribute to team goals through making sound judgements.

Learning, teaching and assessment methods used

Knowledge and understanding are acquired though formal lectures, tutor-led seminars and practical activities, and a range of independent learning activities. Emphasis is placed on guided, self directed and student-centred learning with a progressively increasing independence of approach, thought and process. This independent learning includes an element of peer review in order to evaluate the effectiveness of the learning.

Lectures are used to introduce themes, theories and concepts, which are further explored in seminars. Technology enhanced learning is used, where appropriate, through the provision of online resources, discussion forums and other activities. Advanced textbooks are used, together with professional material and journal articles, in order to ensure that students develop a critical understanding of work at the forefront of their discipline. The module guides direct students to a full range of resources, including books and journals, as well as specialised course-based material.

Analytical and problem solving skills are further developed using a range of appropriate 'real' and 'theoretical' case studies and problem-based learning scenarios.

Practical, including lab-based, sessions are used throughout the programme to develop practical skills and to place theory in a work-related context. Where appropriate, students use commercial development environments.

Learners extend research skills ability in the first semester module, Professional Skills and Research Methods, which develops the key skills of research, academic writing and time management required for study at masters level. These skills are further developed and placed into context in the second semester Project Workshop and by undertaking a major individual project.

Transferable/key skills are pervasive and incorporated into modules and assessments as appropriate, e.g. team-working skills are fostered via group activities. Learners are encouraged to plan their own work schedules and are required to meet deadlines. Reflection and self awareness are fostered throughout.

A range of assessment methods are employed, assessment criteria being published in each assignment brief. Knowledge and skills are assessed, formatively and summatively, by a number of methods, coursework, examinations (seen and unseen, open and closed-book), presentations, practical assignments, vivas, online forums, podcasts, and project work.

Programme structure and requirements, levels, modules, credits and awards

The MSc programme is normally studied over one year full-time or two years part-time (one year and one term full-time for January start). Students may, if they wish, move between full and part-time modes of attendance. The academic year is divided into semesters of approximately 14 weeks each, which run from September to January and January to May.

The course is divided into taught modules of 15 and 30 credits and a Masters project of 60 credits. Students complete 60 credits for Postgraduate Certificate, 120 credits for Postgraduate Diploma and 180 credits for MSc. Each credit represents 10 notional hours of student learning and assessment.

The structure of the course, the module, levels and credit ratings and the awards that can be gained are shown below.

MSc Computer Science

Semester C

60 credits Masters Project PG

Award MSc (180 credits)

Semester B

15 credits Technology Entrepreneurship PG	15 credits Service Architecture PG	15 credits Mobile Software Development PG	15 credits Data Systems Integration PG

Award PgDip (120 credits)

Semester A

15 credits Professional Skills and Research Methods PG	15 credits Advanced Software Engineering PG	15 credits Network Technology PG	15 credits Web Science PG

Award PgCert (60 credits)

Support for Learning including Personal Development Planning (PDP)

Students are encouraged to identify and, with guidance, to reflect on their own learning needs and are offered the following support as appropriate to meet those needs:

- an induction programme dealing with orientation and the dissemination of essential information, including an introduction to PDP;

- a dedicated Learning Centre with open access learning materials, resources and full-time staff specialising in a variety of support areas;

- a Student Handbook, containing information relating to the University, Faculty, School, course and modules;

- access to administrative staff and to academic staff, including the tutors and Course Director;

- support staff to advise on pastoral and academic issues;

- access to Faculty resources, including a range of IT equipment and the services of, and guidance from, IT support staff;

- access to the University's Student Services, including those offered by the careers service, financial advisers, medical centre, disability service, crèche, counselling service and chaplaincy;

- provision of resources for Professional Development Planning (PDP) to enable reflection on learning, performance and achievement and to plan personal, educational and career development. The university offers a range of on-line courses (www.moodle.bcu.ac.uk) to support PDP topics including: Reflection, Career & Employability, Action Planning, Self Awareness and Self Employment.

Criteria for admission

Candidates must satisfy the general admission requirements of the programme.
The current admission requirements can be found under the 'Entry Requirements'
tab of the web page for this course.

Methods for evaluation and enhancement of quality and standards including listening and responding to views of students

The following Faculty committees are involved in evaluation and enhancement of quality, standards and student experience:
Board of Studies
Faculty Board and its sub-committees
Learning and Teaching Committee
 Academic Standards and Quality Enhancement Committee
Student Experience Committee.

Evaluation processes, in which students are involved, include annual course and module reviews, course review and re-approval events, professional body accreditation visits and external examiner visits. Mechanisms for student input include meetings with course tutors, feedback questionnaires, faculty and university student satisfaction surveys and representation on the committees referred to above.