Queen Mary
University of London

Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and programme title:	MSc Telecommunication and Wireless Systems Management with Industrial Experience
Name of interim award(s):	PG Certificate and PG Diploma
Duration of study / period of registration:	24 Months
QMUL programme code(s):	H6M5
QAA Benchmark Group:	Engineering
FHEQ Level of Award:	Level 7
Programme accredited by:	Institution of Engineering and Technology
Date Programme Specification approved:	
Responsible School / Institute:	School of Electronic Engineering & Computer Science

Schools / Institutes which will also be involved in teaching part of the programme:

NA

Institution(s) other than QMUL that will provide some teaching for the programme:

NA

Programme outline

This programme provides training in the principles of converged networking, network planning, network management and network performance through an integrated curriculum designed to respond to rapid developments and growing demand in the discipline. The programme will provide a greater appreciation of the business context in which networked applications and the underlying information and communications technologies are used by organisations. The increased exposure to and understanding of the benefits of technology, business and strategic knowledge and thinking will give the graduates a thorough preparation for management roles within these organisations.

The programme includes a year in industry which takes place in year 2.

Aims of the programme

To provide the students with the background and skills needed for careers in related technologies
To provide the students with management knowledge and skills that will extend their technical knowledge and enable them to pursue a management career in a technical industry

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Programme Title: MSc Telecommunication and Wireless Systems Management

To provide an in-depth understanding of telecommunication systems
To provide an in-depth understanding of network structure, protocols and technologies, of network modelling and performance, wireless and mobile networks and related systems, technologies and mathematical techniques.
To provide an understanding of the importance of technology strategy to businesses and how this is linked to commercial strategy
To provide an understanding of the specific requirements of an entrepreneurial organisation

Specific aims include the ability to identify major new networking challenges; solve selected performance problems in converged networks; sort and compare strategies for network planning and management; identify and compare communications strategies; identify and construct logical sub-tasks from a larger project; acquire project management and strategic management skills, specifically, manage a team including organising time, allocating tasks and managing resources.

The aims of the placement year are to:
• Ground the taught components of the programme in practical experience at a scale not possible within the College;
• Improve career preparation, giving students a better understanding of future career options and enhancing their career prospects.

This programme is accredited by the Institution of Engineering and Technology on behalf of the Engineering Council for the purposes of fully meeting the academic requirement for registration as an Incorporated Engineer and partly meeting the academic requirement for registration as a Chartered Engineer.

What will you be expected to achieve?

- Identify key networking issues and challenges

- Solve well-formulated performance problems in converged networks

- Compare strategies for optimal network planning and management

-Demonstrate relevant knowledge of the engineering environment skills including: the sources of innovation, business and product planning, business organisation, intellectual property protection and exploitation, and project management. Apply this knowledge in a practical scenario

- Identify and compare selected physical layer strategies in communication systems as appropriate to converged telecommunication systems

- Identify and construct logical sub-tasks from a larger project oriented at telecommunication systems

- Investigate and define a problem and identify constraints including environmental and sustainability limitations, health and safety and risk assessment issues

- Ability to generate an innovative design for products, systems, components or processes to fulfil new needs

- Knowledge and understanding of commercial and economic context of engineering processes

- The ability to make general evaluations of commercial risks through some understanding of the basis of such risks

- Ability to apply engineering techniques taking account of a range of commercial and industrial constraints.

- Demonstrate skills in strategic management of technology as appropriate for an engineering organisation

Academic Content:

A1	Theory, principles, concepts and methodologies fundamental to the engineering of telecommunications networks.
A2	Current developments in the engineering of converged, all-packet, next generation networks, in particular within a range of research-led specialities concentrated around telecommunications networking.
A3	Role of business processes in engineering, including the commercial, societal and legal processes; moral and ethical issues including professional conduct and intellectual property.

Disciplinary Skills - able to:	
B1	Demonstrate comprehension and higher level cognitive skills necessary to solve engineering problems in telecommunications networking.
B2	Demonstrate the ability to analyse and evaluate using the appropriate mathematical principles and techniques that underpin the analysis of telecommunications networks.
B3	Analyze business scenarios and comprehend their importance for engineering decision making.

Attributes:	
C1	Develop a global perspective, particularly with respect to the globalization of networking.
C2	Learn to engage critically with knowledge, and particularly with respect to measured network data in which many parameters are uncertain or non-stationary.
C3	Understand the importance of learning continuously in a global world of networking in which change is contant.

How will you learn?

Each non-project-based module normally involves lectures, problem solving coursework and practical sessions. Lectures are used to introduce principles and methods and also to illustrate how they can be applied in practice. Coursework allows students to develop their skills in problem solving and to gain practical experience. Practical sessions provide students with guidance and help while solving a problem. These lessons take the form of exercise classes and programming laboratories that allow the students to learn-by-doing in order to complement the lectures.

Individual projects are undertaken during the summer months under the supervision of an academic member of staff with whom there are normally weekly consultancy meetings. These are used for students to report on their progress, discuss research and design issues and plan their future work. This develops and reinforces students' ability to communicate technical ideas clearly and effectively. The Projects Coordinator also runs a thread of taught sessions to support the project module. A number of industrial-linked projects may be offered each year, which students can apply for.

How will you be assessed?

The assessment of taught courses takes place through a written examination and coursework.

The project is examined on the basis of a written report, a formal oral presentation, and a demonstration of the piece of software developed by the student.

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How is the programme structured?

Please specify the full time and part time programme diets (if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

Semester 1
ECS701P Communication Theory (15 credits)
ECS702P Mobile and WLAN Technologies (15 credits)
ECS703P 21st Century Networks (15 credits)
ECS705P Software and Network Service Design (15 credits)

Semester 2
ECS728P Business Technology Strategy (15 credits)
ECS746P Network Planning, Finance and Management (15 credits)
ECS725P Mobile Services (15 credits)
ECS757P Digital Media and Social Networks (15 credits)

Semester 3
ECS750P Project (60 credits)

Year 2
ECS774P Industrial Placement Project

Academic Year of Study   FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Communication Theory	ECS701P	15	7	Compulsory	1	Semester 1
Mobile and WLAN Technologies	ECS702P	15	7	Compulsory	1	Semester 1
21st Century Networks	ECS703P	15	7	Compulsory	1	Semester 1
Software and Network Service Design	ECS705P	15	7	Compulsory	1	Semester 1
Business Technology Strategy	ECS728P	15	7	Compulsory	1	Semester 2
Network Planning, Finance and Management	ECS746P	15	7	Compulsory	1	Semester 2
Mobile Services	ECS725P	15	7	Compulsory	1	Semester 2
Digital Media and Social Networks	ECS757P	15	7	Compulsory	1	Semester 2

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Project	ECS751P	60	7	Core	1	Semester 3

Academic Year of Study   FT - Year 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Industrial Placement Project	ECS774P	0	7	Core	2	Semesters 1-3

What are the entry requirements?

Further details on our entry requirements can be found at http://eecs.qmul.ac.uk/postgraduates/entry-requirements/

How do we listen to and act on your feedback?

The Student-Staff Liaison Committee provides a formal means of communication and discussion between the School and its students. The committee consists of student representatives from each cohort, together with appropriate representation from School staff. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Student-Staff Liaison Committees meet four times a year, twice in each teaching semester.

Each semester, students are invited to complete a web-based module questionnaire for each of their taught modules, and the results are fed back through the SSLC meetings. The results are also made available on the student intranet, as are the minutes of the SSLC meetings. Any actions necessary are taken forward by the relevant Senior Tutor, who chairs the SSLC, and general issues are discussed and actioned through the School's Student Experience Learning Teaching And Assessment (SETLA) Committee .

The School's SETLA Committee advises the Director of Taught Programmes on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in this Committee's work in a number of ways, including through student membership and consideration of student surveys and module questionnaires.

The School participates in the College's Annual Programme Review process, which supports strategic planning and operational issues for all undergraduate and taught postgraduate programmes. The APR includes consideration of the School's Taught Programmes Action Plan, which records progress on learning and teaching related actions on a rolling basis. Students' views are considered in the APR process through analysis of the NSS and module questionnaires, among other data.

What academic support is available?

All students are assigned an academic advisor during induction week. The advisor 's role is to guide their advisees in their academic development including module selection, and to provide first-line pastoral support.

In addition, the School has a Senior Tutor for postgraduate students who provides second-line guidance and pastoral support for

students, as well as advising staff on related matters.

Every member of teaching staff holds 2 open office hours per week during term-time.

Additional academic support is provided to those students who are successful in securing an industrial-linked project.

The year in industry is supported by a dedicated Industrial Placements Manager.

Programme-specific rules and facts

The programme adheres to the standard Academic Regulations for taught postgraduate programmes, with a special regulation for a progression point after the taught component.

Specific support for disabled students

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites.

Students can access advice, guidance and support in the following areas:
• Finding out if you have a specific learning difficulty like dyslexia
• Applying for funding through the Disabled Students' Allowance (DSA)
• Arranging DSA assessments of need
• Special arrangements in examinations
• Accessing loaned equipment (e.g. digital recorders)
• Specialist one-to-one "study skills" tuition
• Ensuring access to course materials in alternative formats (e.g. Braille)
• Providing educational support workers (e.g. note-takers, readers, library assistants)
• Mentoring support for students with mental health issues and conditions on the autistic spectrum.

Links with employers, placement opportunities and transferable skills

The School has a wide range of industrial contacts secured through research projects and consultancy, our Industrial Experience programme and our Industrial Advisory Panel.

The Industrial Advisory Panel works to ensure that our programmes are state-of-the-art and match the changing requirements of this fast-moving industry. The Panel includes representatives from a variety of Computer Science oriented companies ranging from SMEs to major blue-chips. These include: Microsoft Research, IBM, The National Physical Laboratory, National Instruments, PA Consulting, Rohde and Schwarz, O2, Cisco Systems, ARM, Selex and BAE Systems.

Recent graduates have found employment as IT consultants, specialist engineers, web developers, systems analysts, software designers and network engineers in a wide variety of industries and sectors. A number of students also go on to undertake PhDs in electronic engineering and computer science. Merril Lynch, Microsoft, Nokia, Barclays Capital, Logica,, Credit Suisse, KPMG, Transport for London, Sky and Selex ES are among the organizations that have recently employed graduates of EECS programmes.

Transferable skills are developed through a variety of means, including embedding of QM Graduate Attributes in taught modules and the summer project, together with the opportunity to participate in extra-curricular activities, e.g. the School's E++ Society, the School's Annual Programming Competition and external competitions with support from the School.

Students have the opportunity to undertake an industrial-linked project in the summer - these are very competitive.

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Programme Specification Approval

Person completing Programme Specification:

Rupal Vaja

Person responsible for management of programme:

John Schormans

Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee:

29th January 2018

Date Programme Specification approved by Taught Programmes Board:

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