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 PT Telecommunications and Wireless Systems
Name of interim award(s):	PG Certificate and PG Diploma
Duration of study / period of registration:	24 Months
Queen Mary programme code(s):	H6JD
QAA Benchmark Group:	Engineering
FHEQ Level of Award:	Level 7
Programme accredited by:	Institution of Engineering and Technology (IET)
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

Collaborative institution(s) / organisation(s) involved in delivering the programme:

NA

Programme outline

This programme provides training in the principles of converged networking, both wired and wireless. this includes: aspects of communication theory, network planning and management, network performance, appropriate programming skills and knowledge, mobile services, and fundamentals of security. Through this integrated curriculum designed graduates will be able to respond to rapid developments and growing demand in the discipline. At the end of the programme, you will be able to address major challenges in networking and understand how the different types of infrastructure, both wired and wireless, affect design and commercial decisions.

Aims of the programme

To provide the students with the background and skills needed for careers in related technologies
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.

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.

This programme is accredited by the Institution of Engineering and Technology on behalf of the Engineering Council.

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

- 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

Academic Content:	
A 1	Theory, principles, concepts and methodologies fundamental to the engineering of telecommunications networks.
A 2	Current developments in the engineering of converged, all-packet, next generation networks
A 3	A range of research-led specialities concentrated around telecommunications networking.

Disciplinary Skills - able to:	
B 1	Demonstrate comprehension and higher level cognitive skills necessary to solve engineering problems in telecommunications networking.
B 2	Demonstrate the ability to analyse and evaluate using the appropriate mathematical principles and techniques that underpin the analysis of telecommunications networks.
B 3	Demonstrate an understanding of the business, management and other contextual issues relevant to the field of telecommunication networks.

Attributes:	
C 1	Develop a global perspective, particularly with respect to the globalization of networking.
C 2	Learn to engage critically with knowledge, and particularly with respect to measured network data in which many parameters are uncertain or non-stationary.
C 3	Understand the importance of learning continuously in a fast-moving world of communications.

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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 modules normally 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 software, or otherwise, developed by the student.

How is the programme structured?

Please specify the structure of the programme diets for all variants of the programme (e.g. full-time, part-time - if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

Year 1
Semester 1
ECS782P Introduction to IoT(15 credits)

and one of:
ECS528P Communication Systems(15 credits)
ECS714P Embedded Systems (15 credits)

Semester 2
ECS7008P Modelling & Performance (15 credits)
ECS7021P 5G Mobile and Beyond (15 credits)

Year 2
Semester 1
ECS702P Mobile and WLAN Technologies (15 credits)
ECS783P Enabling Communication Technologies for IoT (15 credits)

Semester 2
ECS725P Mobile Services (15 credits)

and one of:
ECS726P Security and Authentication (15 credits)
ECS784P Data Analytics (15 credits)

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Semester 3
ECS750P Project

Academic Year of Study   PT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Introduction to IoT	ECS782P	15	7	Compulsory	1	Semester 1
Communication Systems	ECS528P	15	7	Elective	1	Semester 1
Embedded Systems	ECS714P	15	7	Elective	1	Semester 1
Modelling & Performance	ECS7008P	15	7	Compulsory	1	Semester 2
5G Mobile and Beyond	ECS7021P	15	7	Compulsory	1	Semester 2

Academic Year of Study   PT - Year 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Mobile and WLAN Technologies	ECS702P	15	7	Compulsory	2	Semester 1
Enabling Communication Technologies for IoT	ECS783P	15	7	Compulsory	2	Semester 1
Mobile Services	ECS725P	15	7	Elective	2	Semester 2
Security and Authentication	ECS726P	15	7	Elective	2	Semester 2
Data Analytics	ECS784P	15	7	Elective	2	Semester 2
Project Module	ECS750P	60	7	Core	2	Semester 3

What are the entry requirements?

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

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How will the quality of the programme be managed and enhanced? 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 Teaching and Learning Committee (TLC).

The School's TLC Committee advises the Director of Education 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.

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.

How inclusive is the programme for all students, including those with disabilities?

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.

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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 student societies, 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.

Programme Specification Approval

Person completing Programme Specification:	Karen FinesilverSmith
Person responsible for management of programme:	John Schormans
Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee:	7 Dec 2021
Date Programme Specification approved by Taught Programmes Board:	

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