**PROGRAMME SPECIFICATION**

**KEY FACTS**

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|---|---|
| Programme name | Telecommunications and Networks |
| Award | MSc |
| School | Mathematics, Computer Science and Engineering |
| Department or equivalent | Electrical and Electronic Engineering |
| Programme code | PSTENE |
| Type of study | Full Time    Part Time |
| Total UK credits | 180 |
| Total ECTS | 90 |

**PROGRAMME SUMMARY**

The MSc Telecommunications and Networks is designed to provide knowledge and understanding of the current technologies used in industry and to introduce new generation of telecommunications systems that are currently researched. The course is suited for new graduates and professionals who want to advance their understanding of the field.
The syllabus covers recent major technological developments in telecommunications; technology; protocols; security and networks including:
- digital, mobile and wireless communications,
- photonics and fibre optic communications,
- internet and cloud networks,
- data and network security.
- network management.

The MSc programme totals 180 credits, which consist of 8 taught modules totalling 120 credits, 1 module of Research Skills (15 credits) and a 45 credit dissertation/project.

The programme is offered as either full or part-time.  The full-time programme follows a normal 12-month pattern with two terms of taught modules followed by a 4-month project in one topic of Telecommunications and Networks. Each project is advised by a member of one of City University research centres involved in research in Telecommunications and Networks.

As a part time student it will take you approximately half the modules from each period in the first year and the remaining half in the second year.  As a part-time student, you may request that the project be completed in an extra year of study.

**MSc in Telecommunications and Networks**
The MSc in Telecommunications and Networks is achieved by gaining 180 credits, i.e. by completing all taught modules, Research Skills module and successfully defending the dissertation.
For all of you completing the. you will demonstrate original application of knowledge to the broad field of telecommunications and Networks with an emphasis on data security,

internet systems, mobile communications and optical networks.
Through the dissertation (or internship) you will be engaged in engineering design or research that contributes new views to one of the field who have studied during the taught modules.
At the end of the MSc, you will have acquired good knowledge of most aspects of Telecommunications and Networks with specialised/expert knowledge in the topic of your dissertation.

**PG Diploma in Telecommunications and Networks**
Completion of the 8 taught modules (excluding Research Skills), totalling 120 credits, awards a PG Diploma in Telecommunications and Networks.
On completion of this Diploma, you will have acquired a theoretical knowledge on various aspects of Telecommunications and Networks with an emphasis on data security, internet systems, mobile communications and optical networks.
You will also have demonstrated practical skills through laboratory based work during coursework of each module.

**PG Certificate in Telecommunications and Networks**
Achieving at least 60 credits in taught modules awards a PG Certificate in Telecommunications and Networks. Through this certificate, you will have gained theoretical knowledge in some aspects of Telecommunications and Networks, which depends on the modules that have been passed.

Aims
The programme aims to:
- Provide you with postgraduate education and training in the fields of Telecommunications and Networks.
- Provide you with knowledge and understanding of current technologies and future generation of communication systems.
- Satisfy the needs of industry and the professional institutions for graduates with a greater in-depth knowledge in these fields.
- Achieve educational parity with European engineering graduates, where undergraduate courses are usually at least 4 years.

**WHAT WILL I BE EXPECTED TO ACHIEVE?**

**On successful completion of this programme, you will be expected to be able to:**

Knowledge and understanding:
- Demonstrate a knowledge and understanding of the general areas of Telecommunications and Networks.
- Understand the advanced techniques and methods applicable to a given Telecommunications and Networks problem.
- Appreciate advanced software techniques to deal with analysis and design tasks in the general areas of Telecommunications and Networks.

Skills:
- Be conversant in Information Technology as fundamental to the fields of Telecommunications and Networks.
- Apply analytic and design knowledge gained in module study to Telecommunications and Networks problems in given problems and laboratory exercises.
- Development and assessment of concepts and hypothesis in the laboratory.
- Analysis and design techniques, in appropriate module areas, to develop concepts and evaluate them through suitable hardware and/or software platforms.
- Communicate the results of analysis and design in extended scientific reports.
- Develop and apply Research Skills and Techniques.
- Solve complex engineering problems using advanced scientific software packages
- Application of software or problem solving, analysis and design.

Values and attitudes:

This programme has been developed in accordance with the QAA Subject Benchmark for generic maters level programmes.

**HOW WILL I LEARN?**

The teaching and learning strategy is based on lectures, tutorials, laboratory coursework, seminars and workshops.

The research project/dissertation aims to provide you with the opportunity to deal with problems in areas where new subject knowledge is required.  This involves literature search, assessment of the relevance of previous work, the development of the research task and the presentation of research results.

**WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?**

Assessment and Assessment Criteria

Assessment of the programme modules comprises written examinations and laboratory coursework.  Each individual module coursework is combined with the written module examination to provide an overall module mark.

The research project is assessed primarily through a dissertation but with contributions from an initial report, work carried out during the project period and oral examination.

You have access to the following University services:  Educational Advice and Guidance Service; The Open Learning Centre; Career Development Centre; University Health Service; Student Counselling Service; and, the Chaplaincy.

Assessment Criteria are descriptions, based on the intended learning outcomes, of the skills, knowledge or attitudes that you need to demonstrate in order to complete an

assessment successfully, providing a mechanism by which the quality of an assessment can be measured. Grade- Related Criteria are descriptions of the level of skills, knowledge or attributes that you need to demonstrate in order achieve a certain grade or mark in an assessment, providing a mechanism by which the quality of an assessment can be measured and placed within the overall set of marks. Assessment Criteria and Grade-Related Criteria will be made available to you to support you in completing assessments. These may be provided in programme handbooks, module specifications, on the virtual learning environment or attached to a specific assessment task.

Feedback on assessment

Feedback will be provided in line with our Assessment and Feedback Policy.  In particular, you will normally be provided with feedback within three or four weeks of the submission deadline or assessment date. This would normally include a provisional grade or mark. For end of module examinations or an equivalent significant task (e.g. an end of module project), feedback will normally be provided within four weeks.  The timescale for feedback on final year projects or dissertations may be longer.  The full policy can be found at:
https://www.city.ac.uk/__data/assets/pdf_file/0008/68921/assessment_and_feedback_policy.pdf

Assessment Regulations

In order to pass your Programme, you should complete successfully or be exempted from the relevant modules and assessments and will therefore acquire the required number of credits.  You also need to pass each Part of your Programme in order to progress to the following Part.

The Pass mark for each module is 50% for both Coursework and Examination.

If you fail an assessment component or a module, the following will apply:

1. Compensation: where you fail up to a total of 20 credits at first or resit attempt (15 for a Postgraduate Certificate), you may be allowed compensation if:
   - Compensation is permitted for the module involved (see the module specification), and
   - It can be demonstrated that you have satisfied all the Learning Outcomes of the modules in the Part, and
   - A minimum overall mark of 40% has been achieved in the module to be compensated, and
   - An aggregate mark of 50% has been achieved overall.

If you receive a compensated pass in a module you shall be awarded the credit for that module. The original component marks shall be retained in the record of marks and the greater of the original module mark and the minimum pass mark for the module shall be used for the purpose of calculation towards the Award.

2. Resit: you will normally be offered one resit attempt.  However, if you did not participate in the first assessment and have no extenuating circumstances, you may not be offered a resit.

If you are successful in the resit, you shall be awarded the credit for that module. The mark used for the purpose of calculation towards your Award shall be calculated from the original marks for the component(s) that you passed at first attempt and the minimum pass mark for the component(s) for which you took a resit.

If you do not satisfy your resit by the date specified you will not progress and the Assessment Board shall require that you withdraw from the Programme.

If you fail to meet the requirements for the Programme, but satisfy the requirements for a lower-level Award, then a lower qualification may be awarded as per the table below. If you fail to meet the requirements for the Programme and are not eligible for the award of a lower level qualification, the Assessment Board shall require that you withdraw from the Programme.

If you would like to know more about the way in which assessment works at City, please see the full version of the Assessment Regulations at:
http://www.city.ac.uk/__data/assets/word_doc/0003/69249/s19.doc

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**WHAT AWARD CAN I GET?**

Master's Degree:

| Part | HE Level | Credits | Weighting (%) |
|------|----------|---------|---------------|
| Dissertation | 7 | 45 | 100 |
| Research Skills | 7 | 15 | 100 |
| Taught | 7 | 120 | 100 |

| Class | % required |
|-------|-----------|
| With Distinction | 70 |
| With Merit | 60 |
| Without classification | 50 |

Postgraduate Diploma:

| Part | HE Level | Credits | Weighting (%) |
|------|----------|---------|---------------|
| Taught | 7 | 120 | 100 |

| Class | % required |
|-------|-----------|
| With Distinction | 70 |
| With Merit | 60 |
| Without classification | 50 |

Postgraduate Certificate:

| Part | HE Level | Credits | Weighting (%) |
|------|----------|---------|---------------|
| Taught | 7 | 60 | 100 |

| Class | % required |
|-------|-----------|
| Without classification | 50 |

**WHAT WILL I STUDY?**

Part 1
The Programme is structured around 9 core modules, 4 in period 1 and 5 in period 2.
You then undertake the Dissertation or an internship.

Additionally, a number of workshops and seminars are included to provide learning and teaching experiences for the coursework and the project.

| Module Title | SITS Code | Module Credits | Core/ Elective | Can be Compen-sated? | Level |
|---|---|---|---|---|---|
| Digital Communications | EPM753 | 15 | C | Y | 7 |
| Fibre Optic Communications | EPM755 | 15 | C | Y | 7 |
| Wireless Communications | EPM756 | 15 | C | Y | 7 |
| Signals and Information Theory | EPM759 | 15 | C | Y | 7 |
| Telecommunication Networks | EPM775 | 15 | C | Y | 7 |
| Communications Security | EPM776 | 15 | C | Y | 7 |
| Lasers and Optoelectronics | EPM911 | 15 | C | Y | 7 |
| Network Security | INM441 | 15 | C | Y | 7 |
| Research Skills | EPM697 | 15 | C | Y | 7 |
| Dissertation | EPM698 | 45 | C | N | 7 |
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**TO WHAT KIND OF CAREER MIGHT I GO ON?**
Information and Communication Technology (ICT) is the major technology influencing all aspects of our life, health, entertainments and society. Electronic communications, including the Internet covering fundamental technologies, electronics, informatics, wireless communications, optical communications, mobile communications, satellite communications, communication protocols, networks, encryption, digital security, and cyber war, banking are fundamental disciplines spread in both established and emerging technological areas. Career opportunities for a graduate in Telecommunications and networks can be found in all these fields. There are also opportunities for further studies by research leading to PhD after the MSc studies.
Some examples of jobs obtained by graduates of the past few years include Processing Engineer, IT Consultant, Software Test Engineer, RF Engineer.
Companies which hired graduates from this MSc include McAfee UK, British Telecom, Arup, Amirit Technologies Inc, Fotech and many others
More information on career paths and Career support at City, please go to:
http://www.city.ac.uk/careers/for-students-and-recent-graduates.

**WHAT STUDY ABROAD OPTIONS ARE AVAILABLE?**

Study Abroad is not possible during this Programme.

**WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?**

- Placement can be substituted for the Dissertation if the work performed is related to the field of Telecommunications and Networks and the work is individual.
- The School Professional Liaison Unit provides support to prepare CVs, interviews and application for internships.

**WILL I GET ANY PROFESSIONAL RECOGNITION?**

**Accrediting Body:** Institute of Engineering and Technology (IET)

**Accrediting Body:** Institute of Measurement and Control (InstMC)

**Nature of Accreditation:** Further learning for CEng

**HOW DO I ENTER THE PROGRAMME?**

To Register for the MSc a minimum admission requirement is a Second Class Hons degree, or equivalent in an Engineering, Scientific or Mathematical discipline will normally be required.

Suitable industrial experience will also be considered.

For those students whose first language is not English, the following qualification is also required:

- IELTS: 6.5 (minimum of 6.0 in all four test components is preferable)

Please note that TOEFL is not accepted as evidence of English language ability for students that require a Confirmation of Acceptance for Studies.