

1. Admissions/ Management Information**Title of the programme – including any lower awards**

Please provide the titles used for all awards relating to this programme. Note: all programmes are required to have at least a Postgraduate Certificate exit award.

See guidance on programme titles in:

Masters	MSc Communications Engineering		
Postgraduate Diploma	PGDip Communications Engineering	Please indicate if the Postgraduate Diploma is available as an entry point, ie. is a programme on which a student can register, is an exit award, ie. is only available to students exiting the masters programme early, or both.	Exit
Postgraduate Certificate	PG Cert Communications Engineering	Please indicate if the Postgraduate Certificate is available as an entry points, ie. is a programme on which a student can register, is an exit award, ie. is only available to students exiting the masters programme early, or both.	Exit
Level of qualification	Level 7		

This document applies to students who commenced the programme(s) in:

2019

Awarding institution

University of York

Teaching institution

University of York

Department(s):

Where more than one department is involved, indicate the lead department

Board of Studies

Lead Department	Department of Electronic Engineering	Department of Electronic Engineering
Other contributing Departments:		

**Route code
(existing programmes only)**

PMELESCOM1

Admissions criteria

Applicants are normally expected to hold (or expected to gain) the equivalent of a 2:1 honours degree or above from a university recognised by the University of York. This degree should be either in electronics, or other engineering or computing courses with a significant mathematics and signal processing content. We are willing to consider applications from students with lower qualifications, particularly when the student has high marks in relevant modules and/or appropriate industrial experience.

As a minimum, students are expected to be familiar with concepts such as complex numbers, calculus, Fourier analysis, decibels, statistics, and to have used the Internet. Students without sufficient background knowledge of electronic communication systems will be provided with some preparatory reading before starting the programme: details of this reading will be provided to all successful applicants.

For applicants whose native language is not English, the minimum University English language requirements of IELTS 6.0 (with at least 5.5 in each of the four language components) or the equivalent are required.

Length and status of the programme(s) and mode(s) of study

Programme	Length (years/ months)	Status (full- time/ part- time)	Start dates/months (if applicable – for programmes that have multiple intakes or start dates that	Mode

				Please select (differ from the usual academic year)		Face-to-face, campus-based		Distance learning		Other	
MSc in Communications Engineering		1 year	Full-time	September	Please select Y/N		Yes	Please select Y/N		No	N/A
Language(s) of study											
English											
Language(s) of assessment											
English											
2. Programme accreditation by Professional, Statutory or Regulatory Bodies (PSRB)											
2.a. Is the programme recognised or accredited by a PSRB											
Please Select Y/N: Yes		if No move to section 3 if Yes complete the following questions									
2.b. Name of PSRB											
IET (Institute of Engineering and Technology)											
2.c. Please provide details of any approval/ accreditation event needed, including: timetables, the nature of the event, central support / information required:											
Department Reapproval for IET accreditation takes place in 2019-20.											
2.d. Are there any conditions on the approval/ accreditation of the programme(s)/ graduates (for example accreditation only for the full award and not any interim award)											
Although the university allows 40 credits of compensation, for the degree to remain IET-accredited, students can only be compensated in 30 credits. If a student has over 30 credits of compensation but has met the university progression requirements of 40 credits of compensation, they may be given the opportunity to resit compensated modules in order to reduce the compensation to 30 credits and remain on an accredited degree. Students who do not meet the IET criteria for accreditation will graduate with MSc Communications											
3. Additional Professional or Vocational Standards											
Are there any additional requirements of accrediting bodies or PSRB or pre-requisite professional experience needed to study this programme?											
Please Select Y/N: No		if Yes, provide details									
N/A											
4. Programme leadership and programme team											
4.a. Please name the programme leader for the <u>year to which the programme design applies</u> and any <u>key</u> members of staff responsible for designing, maintaining and overseeing the programme.											
Dr Yuriy Zakharov (programme leader), Dr Paul Mitchell, Prof Alister Burr											
5. Purpose and learning outcomes of the programme											
5.a. Statement of purpose for applicants to the Masters programme											
Please express succinctly the overall aims of the programme as an applicant facing statement for a prospectus or website. This should clarify to a prospective masters student why they should choose this programme, what it will provide to them and what benefits they will gain from completing it.											

Communications is one of the most exciting and rapidly-expanding subjects in all of engineering, with the Internet and mobile phones revolutionising life for many people over the last few decades. Increasingly, the Internet and mobile telephone networks are converging, and an understanding of both systems and the increasingly diverse information they carry is required to fully appreciate the issues in modern digital communications. Our MSc in Communications Engineering, taught by internationally leading experts from our well-established Communication Technologies Research Group, includes a wide range of modules to enable you to fully appreciate these complex systems. It is fully accredited by the IET (Institution of Engineering and Technology). The programme covers the latest techniques and issues in modern communications systems, along with a thorough grounding in the required technical and mathematical background, with an emphasis on wireless communications, signal processing, and cutting-edge technologies. You will be provided with a balanced picture of modern communications technology and networks to obtain a sound theoretical and practical knowledge of radio communication techniques, signal processing and network protocols. You will be able to design and optimise communication networks and be aware of new techniques and technologies as they are developed. Experience in designing and building industry-standard tools, managing projects and teams, and conducting innovative research working at the cutting edge of communications, will help make you an attractive candidate for employers throughout the field of modern communications. Typical career paths might include: mobile communications industry (research and development, RF system design, coding, software radio, multiple access and networking, test and evaluation procedures, test-bed development, analogue and digital component design), information technology (signal processing, protocols, security, coding, hardware design), and in many industries applying communication technologies.

5.b.i. Programme Learning Outcomes - Masters

PLO	On successful completion of the programme, graduates will be able to:
1	Subject Knowledge: Conduct research into communications engineering theory and practice, advancing the state of knowledge in wireless communication techniques and systems.
2	Engineering Analysis: Extract and critically evaluate literature and other data about complex communication systems through analytical and computational methods and modelling.
3	Engineering Design : Design innovative industry relevant engineering solutions for research-based problems in communications software and/or hardware.
4	Practical Skills: Apply professional skills in communications theory, programming, modelling, combined with an understanding of engineering and communication systems and components, to independently solve technically challenging problems.
5	Technical Communication: Debate, defend and contextualise information in a succinct, professional and technically accurate manner to key stakeholders including engineers, and non-technical audiences. This will include the ability to interpret and write technical documentation to international industry standards.
6	Management & Personal Development: Proficiently manage themselves, teams and complex projects in preparation for future careers as leaders in wireless communications.

5.c. Explanation of the choice of Programme Learning Outcomes

Please explain your rationale for choosing these PLOs in a statement that can be used for students (such as in a student handbook). Please include brief reference to:

i) ... in what way will these PLOs result in an ambitious, challenging programme which stretches the students?

The PLOs for this programme have been developed by the programme team as the best way of capturing the skills and competencies that graduates of the programme will be able to demonstrate. PLO1 indicates that the specialist communications engineering knowledge gained will be actively applied in individual research, working at the cutting edge of wireless communications research. PLOs 2-4 represent the main skillset that engineers are expected to have - that of analysing complex problems in today's world, designing innovative solutions, and having the practical technical ability to bring novel ideas into being. This programme specifically develops an engineering skillset that is applicable in the world of communications. PLO5 emphasises the importance of an engineer being able to communicate their questions, analysis, findings and solutions to a variety of audiences via a variety of media. PLO6 crystallises the need in the modern world for engineers to be effective team-players, adaptable to working alone or in different sized teams for a variety of different purposes. Together these PLOs bring together up-to-date knowledge, cutting-edge engineering skills, with the ability to work effectively with others and communicate with the wider world.

ii) ... in what way will these PLOs produce a programme which is distinctive and advantageous to the student?

York has been developing programmes in this area for many years and staff have a wide range of experience in the core subject knowledge, working on related research projects, and guiding students through the process of learning and practically experiencing the subject. The PLOs form a series of learning ladders that ensure that the different strands of learning receive full coverage across the programme. Whilst students need to learn a good deal of information about their subject, the job of a university in today's knowledge-rich world, is to provide context, guidance and experience of applying that knowledge in practice. For this programme in Communications Engineering, students will gain knowledge, experience and confidence in a combination of areas that are of direct applicability to today's major research topics in wireless communication devices, networks and transmission channels.

iii) ... how the design of the programme enables students from diverse entry routes to transition successfully into the programme? For example, how does the organisation of the programme ensure solid foundations in disciplinary knowledge and understanding of conventions, language skills, mathematics and statistics skills, writing skills, lab skills, academic integrity

Prior to arrival: Students receive newsletters with information about the programme. Extensive preliminary reading is available prior to commencing the programme, and examples given of teaching material and interactive software available for download.

Upon arrival: 3 afternoon intensive induction specifically designed to introduce students to the way we do things here at York, to level the understanding playing field; to give students the chance to get to know each other and work together in groups; to lay down a foundation of generic skills training and UK conventions, especially in teaching and learning; to get them started in writing and speaking skills, working in teams, some tools for creative problem solving, thinking, etc.

We generally mix students in supervision groups by gender and country of origin - with the intention of helping them integrate.

During the year: During the Autumn Term students experience a variety of topics in Communications - from signal processing and information theory through to communications systems and transmission media. These modules have been developed to account for the varying backgrounds of applicants on entry, to ensure a smooth transition from electronic engineering fundamentals to their application in communication systems, providing a solid foundation to which more advanced topics can follow in subsequent terms. Core skills and understanding in mathematics and statistics are reinforced as required, for example in the Introduction to Signal Processing and Signal Processing for Communications modules. A specially developed module in MATLAB provides further training in mathematics and statistics, with laboratories provided to help people with limited experience of engineering coding to make rapid progress.

iv) ... how the programme is designed to enable students to progress successfully - in a limited time frame - through to the end of the award? For example, the development of higher level research skills; enabling students to complete an independent study module; developing competence and confidence in practical skills/ professional skills. See QAA masters characteristics document <http://www.qaa.ac.uk/en/Publications/Documents/Masters-Degree-Characteristics-15.pdf>

The main vehicle for student progress is the design and arrangement of modules to support the students in a deep understanding of theme-based fundamental knowledge, leading rapidly to more specialist research-based knowledge and application. Together the PLOs ensure that the industry-expected skillset is covered, and the modules and framework provide the material, time and support to help students develop to their full potential. Each module is designed to introduce key topic material, but also to allow students to apply this in practice in labs, tutorials, and via supported self-study. Wider transferable skills are immersed throughout the programme and in particular through the substantial group project (teamwork, oral presentation skills, writing skills, time management and planning, academic integrity). The students have access to a wide range of University run modules to improve their language skills. Modules continue in the Spring Term, but these build upon the foundations covered in the Autumn Term, to allow more complex systems to emerge. In the Summer Term the main feature is broadening the students' state-of-the-art knowledge in preparation for the main project, and students are supported in the development of their research, writing, literature review, time management and project management skills. The final stage of the process is a major research and development project in the area, carried out in industry-style teams but developing personal skills and responsibilities. Groups have regular contact from an academic supervisor actively researching in this area. Thus the whole one-year process can be seen as a transition from a generalist interested in communications systems, to a specialist researcher with a wider range of experience and industrial skills in communications engineering.

v) ... how this programme (as outlined in these PLOs) will develop students' digital literacy skills and how technology-enhanced learning will be used to support active student learning through peer/tutor interaction, collaboration and formative (self) assessment opportunities (reference could be made to such as blogging, flipped classrooms, response 'clickers' in lectures, simulations, etc).

The entire programme is imbued with developing digital literacy. A variety of programming languages are encountered and applied by students (PLOs 1-4) as a key part of the modules. The field of Communications Engineering can only exist with a deep understanding of the design and use of hardware and software systems, and so this is built in deeply to the module and programme structure. Students not only learn how to *use* digital tools, but how to *design and build* them. PLO1 enhances personal research by developing students' skills to independently find, evaluate and use sources. Students also need to develop their personal communication skills (PLO5) and the programme and its assignments provide multiple opportunities for this; from keeping technical logbooks, to portraying information to the public via poster preparation, and by doing public presentations. PLO6 is developed not only in the module assignments (managing themselves, teams and complex projects) which use collaborative tools such as Google Apps, but in the final teamworking project, and by involvement in the Professional Development Framework (see below in 5.c. vi).

vi) ... how this programme (as outlined in these PLOs) will support and enhance the students' employability (for example, opportunities for students to apply their learning in a real world setting)?

The programme's employability objectives should be informed by the University's Employability Strategy:

All our MScs programmes incorporate a carefully designed Professional Development Framework. In consultation with our Departmental Advisory Board, with key contributors from Industry, Research and Academia, this ensures that all students gain awareness of the essential skills that employers need and opportunities to develop their personal and team-based effectiveness. This begins with an Induction Week including an introduction to masters-level learning, and student team activities. Throughout the Autumn and Spring Terms students develop their personal effectiveness in a series of workshops (covering such issues as literature, research, referencing, teamwork, leadership, reflective learning, ethics, and business skills). These lead on to Interdisciplinary Masterclasses which cover key research and development cross-curricular topics in emerging technology. In the Summer Term students are prepared for research methodology and digital literacy, and undertake regular developmental training in project management. This all leads to a major group project (60 credit units) which is designed to give research and industry-relevant experience to individuals and teams as a major component of each programme.

viii) ... how learning and teaching on the programme are informed and led by research in the department/ Centre/ University?

The Communication Technologies Research Group in the Department of Electronic Engineering has been involved in research and development of world-leading modern communications systems, with an emphasis on wireless communications. Modules are informed by this research and development and are kept up to date with the latest research, equipping them with state-of-the-art knowledge in this rapidly evolving area. Students have multiple opportunities to work with and be guided by staff who are actively working in these developing subject fields.

5.d. Progression

For masters programmes where students do not incrementally 'progress' on the completion of a discrete Postgraduate Certificate and Postgraduate Diploma, please summarise students' progressive development towards the achievement of the PLOs, in terms of the characteristics that you expect students to demonstrate at the end of the set of modules or part thereof. This summary may be particularly helpful to students and the programme team where there is a high proportion of option modules and in circumstances where students registered on a higher award will exit early with a lower one.

Note: it is not expected that a position statement is written for each masters PLO, but this can be done if preferred.

On completion of modules sufficient to obtain a Postgraduate Certificate students will be able to:

If the PG Cert is an exit award only please provide information about how students will have progressed towards the diploma/masters PLOs. Please include detail of the module diet that students will have to have completed to gain this qualification as an exit award.

Students can receive a postgraduate certificate by achieving a minimum of 60 credits in taught modules. This could occur for instance by failing a pass/fail module, or by not being able to progress onto the project for other reasons such as failing the Research Methods or Emerging Technologies modules. Up to this point in the programme all PLOs are covered, but PLO1 will be lacking the literature review contextualisation, and PLO6 will be under-practiced as the major project is not experienced.

On completion of modules sufficient to obtain a Postgraduate Diploma students will be able to:

If the PG Diploma is an exit award only please provide information about how students will have progressed towards the masters PLOs. Please include detail of the module diet that students will have to have completed to gain this qualification as an exit award.

Students can receive a diploma by passing everything except the project (due to leaving early or by failing the project). Thus they will have covered the majority of PLOs 1-5. Their completion of PLO6 will be limited compared to a Masters graduate, but it is not entirely missing as they will have still have completed the Research Methods and Emerging Technologies modules and attended support sessions on Project Management.

6. Reference points and programme regulations

6.a. Relevant Quality Assurance Agency benchmark statement(s) and other relevant external reference points

Please state relevant reference points consulted (e.g. Framework for Higher Education Qualifications, National Occupational Standards, Subject Benchmark Statements or the requirements of PSRBs): See also Taught Postgraduate Modular Scheme: Framework for Programme Design:

Framework for Higher Education Qualifications in England, Wales and Northern Ireland – August 2008 <http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>
IET Accreditation – October 2014: <http://www.theiet.org/academics/accreditation/policy-guidance/>

6.b. University award regulations

The University's award and assessment regulations apply to all programmes: any exceptions that relate to this programme are approved by University Teaching Committee and are recorded at the end of this document.

7. Programme Structure

7.a. Module Structure and Summative Assessment Map

Please complete the summary table below which shows the module structure and the pattern of summative assessment through the programme.

IMPORTANT NOTE:

If the structure of your programme does not fit the usual academic year (for instance students start at the beginning of September or in January) please contact your Academic Quality Team contact in the Academic Support Office for guidance on how to represent the structure in an alternative format.

To clearly present the overall programme structure, include the name and details of each individual CORE module in the rows below. For OPTION modules, 'Option module' or 'Option from list x' should be used in place of specifically including all named options. If the programme requires students to select option modules from specific lists by term of delivery or subject theme these lists should be provided in the next section (7.b).

From the drop-down select 'S' to indicate the start of the module, 'A' to indicate the timing of each distinct summative assessment point (eg. essay submission/ exam), and 'E' to indicate the end of teaching delivery for the module (if the end of the module coincides with the summative assessment select 'EA'). It is not expected that each summative task will be listed where an overall module might be assessed cumulatively (for example weekly problem sheets).

Summative assessment by exams should normally be scheduled in the spring week 1 and summer Common Assessment period (weeks 5-7). Where the summer CAP is used, a single 'A' can be used within the shaded cells as it is understood that you will not know in which week of the CAP the examination will take place. (NB: An additional resit assessment week is provided in week 10 of the summer term for postgraduate students. See Guide to Assessment, 5.4.a)

Full time structure

Full-time Route: Please indicate when the Progression Board and Final Exam board will be held and when any reassessments will be submitted.

NB: You are required to provide at least three weeks notice to students of the need for them to resubmit any required assessments, in accordance with the Guide to Assessment section 4.9.

Progression Board	Week 2 Summer Vacation
Reassessment	Week 7 Summer Vacation
Exam Board	Autumn Term Week 3

Part time structures

Year 1 (if you offer the programme part-time over either 2 or 3 years, use the toggles to the left to show the hidden rows)

Year 2

Year 3

7.b. Optional module lists

If the programme requires students to select option modules from specific lists these lists should be provided below. If you need more space, use the toggles on the left to reveal ten further hidden rows.

Option List A Option List B Option List C Option List D

7.c. Explanation of the programme and assessment design

The statements should be in a form that can be used for students (such as in a student handbook). It should make clear to students why they are doing the key activities of the programme, in terms of reaching the PLOs.

i) Students' independent study and formative work Please outline how independent study and student work has been designed to support the progressive achievement of the programme learning outcomes (for example, the use of online resources which incorporate formative feedback; opportunities for further learning from work-based placements)

All modules incorporate a major component of independent study. Key texts are given to read, as well as information about, for example, the programming language being taught, or the communication principles being described. As the programme progresses, increasing amounts of the students' time is spent working on more specialised material, culminating in a major project. Throughout this whole process the Professional Development Framework provides an opportunity to work with all Masters students in the Department to develop key skills and competencies that have been developed with our consultations with industry. For example, progressive development of independent study skills has been designed into the programme through the *Emerging Technologies* and *Group Project* modules. The *Emerging Technologies* module provides useful training in both independent research (undertaking a literature review), critical analysis of findings, and presentation skills which are all further developed in the group project.

ii) Contact with staff

Please explain how the programme's design maximises the value of students' contact time with staff (which may be face-to-face, virtual, synchronous or asynchronous), including through the use of technology-enhanced learning. For example, giving students resources for their independent study which then enables a class to be more interactive with a greater impact on learning.

In the first term of the programme, students have access to intensive periods of study by staff in lectures, labs, tutorials and supervisions. Lab assistants are also available to help with practical work. On-line materials are provided in advance of lectures, laboratories and workshops in order to facilitate and make the most effective use of contact time, through effective preparation. Students have access at any time to a personal supervisor who is there to guide them through the process and help them reflect on their learning and progress. In addition to scheduled meetings, students are encouraged to contact their personal supervisors and module coordinators on a needs basis. All modules have self-study materials available such as lecture notes, lab-scripts etc, which students are expected to read, and these can then be discussed with staff during taught sessions. Contact time changes during the Summer period to a more supervisory role, where students have access to two project supervisors (who are not necessarily their academic supervisor) and here the focus is on supporting, developing and progressing the final project. Meetings are typically held on a weekly basis, with individual students and whole project groups encouraged to contact their lead project supervisor as technical queries arise.

iii) Summative Assessment

Please outline how summative assessment within and across modules has been designed to support and evidence the progressive achievement of the programme learning outcomes. (For example, the use of different assessment methods at the 'introduction' stage compared to those used to evaluate deeper learning through the application of skills and knowledge later in the programme).

This programme has a mix of summative assessment styles. Theoretical modules are usually assessed by closed-book examination. Several assignments are designed to be more than just a test, but to provide a challenging experience for personal work. Scenarios are given for each such assignment which reflect the range of real-world applications that the students may encounter in this topic area. Early stage assessment is more restricted to testing the knowledge and understanding of fundamental theory and its application to practical problems. Beyond the Autumn term, assessments include parts which require the students to apply their knowledge to solve particular problems. In modules during the later stages of the degree programme, notably the group project, every student is required to be creative and develop their own designs and solutions to challenging communication problems. Thus later assignments, including the final project, tend to cover most PLOs as they require the application of knowledge (PLO1), the analysis and design of a problem (PLOs 2 & 3), the practical building and development of a technical solution (PLO4), managed in a creative and effective way (PLO6) and described effectively to others (PLO5). As the programme progresses, the assignments incorporate a greater degree of student innovation and independence, culminating in a final creative and technical project.

8. Additional information

8.a. Continuing Professional Development

Will any of the programme's modules be available on a free-standing basis?

Please Select Y/N:	No	
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8.b. Transfers out of or into the programme

i) Transfers <u>into</u> the programme will be possible? (please select Y/N)	No	
ii) Transfers <u>out</u> of the programme will be possible? (please select Y/N)	No	

11. Exceptions to University Award Regulations approved by University Teaching Committee

Exception	Date approved
Please detail any exceptions to University Award Regulations approved by UTC	
N/A	N/A

Quality and Standards

The University has a framework in place to ensure that the standards of its programmes are maintained, and the quality of the learning experience is enhanced.

Quality assurance and enhancement processes include:

- the academic oversight of programmes within departments by a Board of Studies, which includes student representation
- the oversight of programmes by external examiners, who ensure that standards at the University of York are comparable with those elsewhere in the sector
- annual monitoring and periodic review of programmes
- the acquisition of feedback from students by departments, and via the Postgraduate Taught Experience Survey (PTES).

More information can be obtained from the Academic Support Office:

Date on which this programme information was updated:

4 Sept 2019

Departmental web page:

https://www.york.ac.uk/electronic-engineering/postgraduate/taught_masters_degrees/msc_comms/

Please note:

The information above 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 they take full advantage of the learning opportunities that are provided. Detailed information on the learning outcomes, content, delivery and assessment of modules can be found in the module descriptions. The University reserves the right to modify this overview in unforeseen circumstances, or where the process of academic development, based on feedback from staff, students, external examiners or professional bodies, requires a change to be made. Students will be notified of any substantive changes at the first available opportunity.

Template Last Updated 11/01/2017 by Adrian Lee

Overview of modules by stage

Notes:

[1] The credit level is an indication of the module's relative intellectual demand, complexity and depth of learning and of learner autonomy (Level 4/Certificate, Level 5/Intermediate, Level 6/Honours, Level 7/Masters).....

[2] The credit value gives the notional workload for the module, where 1 credit corresponds to a notional workload of 10 hours (including contact hours, private study and assessment).....

[3] Special assessment rules (requiring University Teaching Committee approval); P/F – the module marked on a pass/ fail basis (NB pass/ fail modules cannot be compensated); NC – the module cannot be compensated; NR – there is no reassessment opportunity for this module. It must be passed at the first attempt

[4] Independent Study Modules (ISMs) are assessed by a dissertation or substantial project report. They cannot be compensated (NC) and are subject to reassessment rules which differ from 'taught modules'. Integrated Masters programmes may designate a project in the final stage as an ISM which is then subject to the assessment rules as set out in the postgraduate programmes section of the Guide to Assessment.

Core & option module table (add additional rows as required)

Core/ Option	New/ substantially revised module – Yes/ No	Module title	Module code	Credit level[1]	Credit value[2]	Prerequisites, Corequisites, Prohibited combinations (name of module(s))	Assessment rules[3],[4]	Timing of module (eg. AuT – Autumn, SpT – Spring, SuT – Summer Term, Year long)	Format, contribution to module mark and timing of summative assessment (eg. essay, 50%, AuT wk10, exam and 50%, SpT wk1)
Core	No	Introduction to Signal Processing	ELE00028M	7/M	10			AuT	Closed-book examination, 100%, Spt CAP
Core	No	Information Theory and Error Control Coding	ELE00005M	7/M	10			AuT	Closed-book examination, 100%, Spt CAP
Core	No	Wired, Wireless & Optical Transmission	ELE00105M	7/M	10			AuT	Closed-book examination, 100%, Spt CAP
Core	No	Introduction to Communications	ELE00113M	7/M	10			AuT	Exam, 100%, SpT wk 1
Core	No	Introduction to MATLAB	ELE00031M	7/M	10			AuT	Exercises 100%, AuT wks6-8
Core	No	Signal Processing for Communications	ELE00092M	7/M	20			SpT	Closed-book examination, 100%, SuT wk1
Core	No	Internet & LAN Protocols	ELE00060M	7/M	10			SpT	Exam, 100%, SuT wk 1

Core	No	Advanced Wireless Transmission for MSc	ELE00056M	7/M	10	Prerequisites: Wired, Wireless and Optical Transmission, Information Theory and Error Control Coding, Introduction to Communications	SpT	Lab Question Sheets, 50%, SpT Wks2-9, Report on design exercise, 50%, SuT wk1
Core	No	Mobile Communication Systems	ELE00042H	6/H	10		AuT	Closed book exam, 100%, SpT Wk 1
Core	Yes	Research Methods Theory	ELE00123M	7/M	10		SuT	Individual Report, 100%, SuT wk 4
Core	Yes	Emerging Technologies	ELE00125M	7/M	10		SuT	Presentation, 100%, SuT wk 7
Core	No	MSc Communications Engineering Project	ELE00054M	7/M	60	ISM	SuT, SuV	