PROGRAMME SPECIFICATION

Programme Aim and Title	BEng (Hons) Communication Systems Engineering
Intermediate Awards Available	Ordinary, DipHe, CertHE, University Certificate
Teaching Institution(s)	Ain Shams University – Faculty of Engineering, Cairo, Egypt
Alternative Teaching Institutions (for local arrangements see final section of this specification)	N/A
UEL Academic School	School of Architecture, Computing and Engineering
UCAS Code	N/A
Professional Body Accreditation	N/A
Relevant QAA Benchmark Statements	Engineering (2015)
Additional Versions of this Programme	N/A
Date Specification Last Updated	May 2019

Programme Aims and Learning Outcomes

This programme is designed to give you the opportunity to:

- Develop a strong understanding of the capabilities and limitations of communication systems and the related electronics.
- Develop advanced analytical and experimental skills that will allow the successful graduates to design new communication systems and provide them with the skills to critically analyze existing designs.
- Develop excellence in communication of technical and non-technical information in written, oral or graphical form and the duties associated with the status of a communication engineer.
- Enhance active learning and establish a well-developed academic base and ethics that provides for further learning and professional development

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The graduates of the Communication Systems Programme should be able to demonstrate:

Knowledge

- Concepts and theories of mathematics, sciences, electronic engineering systems and their application within the field of Communication engineering.
- Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues associated with Communication engineering.

- Professional ethics and impacts of engineering solutions on society and environment.
- Coding and decoding techniques, Basics of electromagnetism, wave propagation and Transmission lines for communication systems.
- Analysis and control and Basics of Communication systems and networks.

Thinking skills

- Select appropriate mathematical and computer-based methods for modelling and analysing communication systems problems
- Think in a creative and innovative way in problem solving and design.
- Combine, exchange, and assess different ideas, views, and knowledge from a range of sources.
- Solve industrial problems, often on the basis of limited and possibly contradicting information.
- Incorporate economic, societal, environmental dimensions and risk management in design.
- Analyse the performance of digital and analogue communication, mobile communication, coding, and decoding systems.

Subject-Based Practical skills

- Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve communication systems problems.
- Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyse and interpret results.
- Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
- Apply quality assurance procedures and follow communication systems codes and standards.
- Exchange knowledge and skills with communication systems engineering community and industry.
- Apply computer programming for the design and diagnostics of digital and analogue communication, mobile communication, coding, and decoding systems.

Skills for life and work (general skills)

- Collaborate and communicate effectively within multidisciplinary team.
- Work in a stressful environment and within constraints.
- Effectively manage tasks, time, and resources.
- Search for information and engage in life-long self-learning discipline.

Learning and Teaching

Learning and Teaching take into consideration the learning outcomes, progression through the levels of study, the nature of the subject and the student intake, and the need to take greater responsibility for self-learning.

The approaches adopted are outlined below:

Knowledge is developed through

- Formal lectures (including those from Visiting Lecturers)
- Guided reading
- Individual and team-based project work
- Knowledge-based activities with feedback
- Online discussions and activities

Thinking skills are developed through

- Engaging in tutorial exercises
- Practical demonstration
- Supervised research or project work.
- Reflective activities with feedback
- Online discussions and activities

Practical skills are developed through

- Demonstrations and practical sessions linked with the taught modules
- Design and operating equipment and using measuring instruments under supervision during project work.
- IT activities with feedback
- Research skills-based activities with feedback

Skills for life and work (general skills) are developed through

- The demands of the study medium
- Planning activities with feedback
- Project work

Assessment

The assessment strategy reflects the Learning and Teaching methodologies and the learning outcomes,

Knowledge is assessed by

- Analytical and experimental coursework

- Essays
- Examinations

Thinking skills are assessed by

- Analytical and experimental coursework
- Examinations
- Project work

Practical skills are assessed by

- Practical reports
- Feedback on laboratory work linked with the taught modules.
- Presentation & Discussion of Results.
- Portfolio completion

Skills for life and work (general skills) are assessed by

- Case studies
- Laboratory demonstrations and research.
- Project work
- Group work

Students with disabilities and/or particular learning needs should discuss assessments with the Programme Leader to ensure they are able to fully engage with all assessment within the programme.

Work or Study Placements

Although there is no compulsory placement system, we encourage all students to seek work experience during their summer vacations. Training could be performed in an industrial/service facility related to the student's program and must be under the full supervision of the faculty according to the requirements stipulated in Article (37) of the ASU Credit-hour Educational Programmes bylaws. The training is mandatory for the normal ASU degree.

Programme Structure

All programmes are credit-rated to help you to understand the amount and level of study that is needed.

One credit is equal to 10 hours of directed study time (this includes everything you do e.g. lecture, seminar and private study).

Credits are assigned to one of 5 levels:

3 Equivalent in standard to GCE 'A' level and is intended to prepare students for year one of an undergraduate degree programme.
4 Equivalent in standard to the first year of a full-time undergraduate degree programme.
5 Equivalent in standard to the second year of a full-time undergraduate degree programme.
6 Equivalent in standard to the third year of a full-time undergraduate degree programme.
7 Equivalent in standard to a Masters degree.

Programmes are made up of modules that are each credit weighted.

The module structure of this programme:

Level	UEL Module Code	ASU Module Code	Module title	Credit Weighting	Core/ Option	Available by Distance Learning? Y/N
Communication Systems Engineering						
3	EG3XXX	EG10311	Applied Mathematics for Communications Engineering	30	Core	N
3	EG3XXX	EG10312	Foundations of Physics	30	Core	N
3	EG3XXX	EG10313	Engineering and Electronic Materials	30	Core	N
3	EG3XXX	EG10314	Circuits and Fields Theory	30	Core	N
Communication Systems Engineering						
4	EG4XXX	EG10421	Digital Design and Computer Architecture	30	Core	N
4	EG4XXX	EG10422	Electronic Devices & Circuits	30	Core	N
4	EG4XXX	EG10423	Fundamentals of Microwave Engineering	30	Core	N
4	EG4XXX	EG10424	Fundamentals of Signals & Communications	30	Core	N
Communication Systems Engineering						
5	EG5XXX	EG10531	Analog and Digital Circuits	30	Core	N
5	EG5XXX	EG10532	Antenna Engineering	15	Core	N
5	EG5XXX	EG10533	Digital Transmission and Networks	30	Core	N
5	EG5XXX	EG10534	Control Engineering	15	Core	N
Track 1: Signals and Communication Systems						
5	EG5XXX	EG10535	Satellite Communications	15	Option	N

5	EG5XXX	EG10536	Statistical Signal Processing	15	Option	N
Track 2: Circuits and Systems						
5	EG5XXX	EG10537	VLSI Technology	15	Option	N
5	EG5XXX	EG10538	Introduction to Embedded Systems	15	Option	N
Track 3: Physical and Wave Electronics						
5	EG5XXX	EG10539	Microwave Circuits	15	Option	N
5	EG5XXX	EG105310	Optical Sensing	15	Option	N
Communication Systems Engineering						
6	EG6XXX	EG10641	Advanced Communication Networks	15	Core	N
6	EG6XXX	EG10642	Graduation Project	30	Core	N
6	EG6XXX	EG10643	Entrepreneurship	15	Core	N
6	EG6XXX	EG10644	Information Theory and Coding	15	Core	N
Track 1: Signals and Communication Systems						
6	EG6XXX	EG10645	Wireless and Mobile Communications	30	Option	N
6	EG6XXX	EG10646	Processing for Multimedia	15	Option	N
Track 2: Circuits and Systems						
6	EG6XXX	EG10647	Analog and RF Circuit design	30	Option	N
6	EG6XXX	EG10648	ASIC Design & Automation	15	Option	N
Track 3: Physical and Wave Electronics						
6	EG6XXX	EG10649	Microwave Systems	30	Option	N
6	EG6XXX	EG106410	Optical Communication	15	Option	N

The overall credit-rating of this programme is 480 credits. If for some reasons you are unable to achieve this credit you may be entitled to an intermediate award, the level of the award will depend on the amount of credit you have accumulated. You can read the University Student Policies and Regulations on the UEL website.

Programme Specific Regulations

This is a double award programme leading to the award of both a UEL and ASU qualification. Each institution shall be responsible for the issuing of the award certificate of that institution.

Typical Duration

It is possible to move from full-time to part-time study and vice-versa to accommodate any external factors such as financial constraints or domestic commitments. Many of our students make use of this flexibility and this may impact on the overall duration of their study period.

The expected duration of this programme is 4 years full-time or 8 years part-time.

A student cannot normally continue study on a programme after 4 years of study in full time mode unless exceptional circumstances apply and extenuation has been granted. The limit for completion of a programme in part time mode is 8 years from first enrolment.

Further Information

More information about this programme is available from:

- The UEL web site (www.uel.ac.uk)
- The programme handbook
- Module study guides
- UEL Manual of General Regulations (available on the UEL website)
- UEL Quality Manual (available on the UEL website)
- School web pages
- FoE-ASU website (***https://eng.asu.edu.eg/UEL***)

All UEL programmes are subject to thorough programme approval procedures before we allow them to commence. We also constantly monitor, review and enhance our programmes by listening to student and employer views and the views of external examiners and advisors.

Additional costs:

- The students pay the annually approved credit hour rate by the Board and the Council of the FoE - ASU. For the academic year 2019/20, the rate of the credit hour is 1500L.E. Student register a maximum of 18 credit hours per semester.

- Late registration is not final unless there is a vacancy in the courses, and the student should pay late registration fee in addition to the prescribed academic service fees. The late registration fee is an administrative fee and decided by the credit hour programmes board. It should not exceed the fees of a one credit hour.

- Students will pay all tuition/study/workshop/course field trip/field training fees directly to ASU. Student pay only the direct cost of the field trips, and two credit hours for field training supervision.

Alternative Locations of Delivery

N/A