

BEng (Hons) Telecommunications Engineering with Networking - E432 (Under Review)

1. Objectives

With rapid development in the telecommunications field, there has been a rising demand for competent telecommunications professionals in both the public and private sectors. This undergraduate degree programme has been designed to facilitate the integration of graduates into the job market with prospects to work as telecommunications engineers, professionals, programmers, network engineers, communication application developers and project managers. Students will study a range of core topics such as programming for telecommunications systems, data communications and networking, communications protocol development, communications security and telecommunications project management. The programme aims to develop the critical understanding of the students and equip them with the skills required to design, implement, manage and maintain telecommunication systems and networks.

2. General Entry Requirements

As per General Entry Requirements for Admission to the University for Undergraduate Degrees.

3. Programme Requirements

2 GCE 'A' Level Passes in Mathematics and one of the following subjects: Physics, Physical Science, Engineering Science, and Physics with Chemistry. Note: the minimum grade in Mathematics should be C.

4. (i) Minimum Requirements for Degree Award

MODULES	CREDITS
Engineering	134
TOTAL	134

For the degree award all core modules prescribed by the department must be completed.

(ii) Minimum Requirements for Diploma Award

A student may opt for a Diploma in Telecommunications Engineering with Networking provided s/he satisfies the following minimum requirements. The Diploma project would normally be of 8 weeks duration for an input of at least 90 hours.

MODULES	CREDITS
Maths for Telecommunications	5
Engineering	49
Diploma Project	6
TOTAL	60

5. Programme Duration:

Normal	4 years
Maximum	7 years

6. Credits per Year

Minimum – 18 and Maximum - 48 subject to Regulation 5.

7. Assessment

Continuous and Written Assessment of Modules

Assessment will be based on a written examination of 2 to 3 hour duration (normally a paper of 2 hour duration for modules carrying less or equal to 3.5 credits and 3 hour paper for modules carrying four to six credits) and on continuous assessment done during the semester or year.

Written examinations for all modules, whether taught in semester 1 or in semester 2 or both, will be carried out at the end of the academic year (unless otherwise stated).

The continuous assessment will count for **20% to 30%** of the overall percentage mark of the module(s), except for a programme where the structure makes for other specific provision(s). Continuous assessment may be based on laboratory work, seminars and/or assignments and **should include at least two (2) assignments/ tests per semester/year per module.**

There will be a compulsory class test for all modules taught in semester 1 at the end of semester 1 of the given academic year unless stated otherwise in the programme structure.

An overall total of **50%** for combined assessment and written examination components would be required to pass the module, without minimum thresholds within the individual continuous assessment and written examination.

Special examinations (e.g. class tests) will be arranged at the end of semester 1 or semester 2 for exchange students who have registered only for one semester. In case of yearly modules, credits will be assigned on a pro-rata basis.

8. Resit Examinations

If a student obtains a CPA of at least 50% but has not passed all the modules, a Resit examination may be granted for failed modules by the Board of Examiners provided that:

- (i) A minimum of 40% has been obtained in continuous assessment;
- (ii) A Final mark of at least 40% has been achieved in the failed modules.

Resit examinations do not apply to final year Project/Dissertation/Mini-Project Portfolio/Industrial Training and to modules assessed solely by continuous assessment.

9. Repeat and Termination of Registration

If the CPA of a student is < 40% for an academic year, s/he will have to repeat the entire academic year, and the retake modules as and when offered. However, s/he will not be required, if s/he wishes, to retake modules for which Grade C or above has been obtained. Students will be allowed to repeat only once over the entire duration of the Programme of Studies.

Registration of a student will be terminated if:

- (i) the CPA is < 40% at the end of an academic year and the student has already repeated one year of study; or
- (ii) the maximum duration allowed for completion of the Programme of Studies has been exceeded; or
- (iii) If s/he is a year 1 student who has scored a CPA of <25% at the end of an academic year (for yearly programmes). However the Board of Examiners might allow a repeat if there is evidence of compelling circumstances or valid medical grounds.

10. List of Modules - BEng (Hons) Telecommunications Engineering with Networking

CORE MODULES	Hrs/Wk	Credits
	L+P	
ELEC 1063Y(1) Maths for Telecommunications	2+1	5
ELEC 1064Y(1) Physics for Telecommunications	2+0	4
ELEC 1065Y(1) Professional Communication and Management Skills	2+1	5
ELEC 1070Y(1) Electrical Engineering	2+1	5
ELEC 1066Y(1) Programming for Telecommunications Systems	2+2	6
ELEC 1067Y(1) Data Communications and Networking 1	2+1	5
ELEC 1068Y(1) Telecommunications Technology 1	2+0	4
ELEC 1069Y(1) Telecommunications Mini-projects	8 Weeks	0
ELEC 2063Y(3) Communications Protocol Development	2+2	6
ELEC 2064Y(3) Communication Systems	2+1	5
ELEC 2065Y(3) Telecommunications Technology 2	2+1	5
ELEC 2066Y(3) Electronics for Telecommunications	2+1	5
ELEC 2067Y(3) Data Communications and Networking 2	2+2	6
CSE 2039Y(3) Web and Database Design	2+2	6
ELEC 4100Y(5) Degree Project		12
ELEC 3064Y(5) Multimedia Communications	2+1	5
ELEC 4059Y(5) RF and Microwave Engineering	2+1	5
ELEC 3065Y(5) Wireless Communications	2+1	5
ELEC 3066Y(5) Mobile Communications	2+1	5
ELEC 3067Y(5) Telecommunications Applications Development	2+1	5
ELEC 3068Y(5) Telecommunications Project Management	3+0	6
ELEC 3069Y(5) Signal Processing for Telecommunications	2+1	5
ELEC 4060Y(5) Communications Security	2+1	5
ELEC 4061Y(5) Optical Communications and Networking	2+1	5
ELEC 3100 Industrial Training	8 weeks	0
ELEC 4134(5) Regulations and Policy in the Telecommunications Industry	3+0	3
ELECTIVES	Hrs/Wk	Credits
	L+P	
ELEC 4064Y(5) Next Generation Networks	2+1	5
ELEC 4062Y(5) Broadcasting Technologies	2+1	5
ELEC 4063Y(5) Satellite Communications	2+1	5

NOTE 1:

Core module for Diploma: ELEC 2100(3) Diploma Project (6 credits) and ELEC 1063Y(1) Maths For Telecommunications.

NOTE 2:

For a student to clear the module ELEC 1069Y(1) Telecommunications Mini-projects s/he must obtain Grade S (Satisfactory) in the module.

11. **Programme Plan - BEng (Hons) Telecommunications Engineering with Networking**

LEVEL 1 - Semester 1 & 2

Code	Core Module	Hrs/Wk	Credits
		L+P	
ELEC 1063Y(1)	Maths for Telecommunications	2+1	5
ELEC 1064Y(1)	Physics for Telecommunications	2+0	4
ELEC 1065Y(1)	Professional Communication and Management Skills	2+1	5
ELEC 1066Y(1)	Programming for Telecommunications Systems	2+2	6
ELEC 1067Y(1)	Data Communications and Networking 1	2+1	5
ELEC 1068Y(1)	Telecommunications Technology 1	2+0	4
ELEC 1069Y(1)	Telecommunications Mini-projects	8 Weeks	0
ELEC 1070Y(1)	Electrical Engineering	2+1	5

LEVEL 2 - Semester 1 & 2

Code	Core Module	Hrs/Wk	Credits
		L+P	
ELEC 2063Y(3)	Communications Protocol Development	2+2	6
ELEC 2064Y(3)	Communication Systems	2+1	5
ELEC 2065Y(3)	Telecommunications Technology 2	2+1	5
ELEC 2066Y(3)	Electronics for Telecommunications	2+1	5
ELEC 2067Y(3)	Data Communications and Networking 2	2+2	6
CSE 2039Y(3)	Web and Database Design	2+2	6

LEVEL 3 - Semester 1 & 2

Code	Core Module	Hrs/Wk	Credits
		L+P	
ELEC 3064Y(5)	Multimedia Communications	2+1	5
ELEC 3065Y(5)	Wireless Communications	2+1	5
ELEC 3066Y(5)	Mobile Communications	2+1	5
ELEC 3067Y(5)	Telecommunications Applications Development	2+2	6
ELEC 3068Y(5)	Telecommunications Project Management	3+0	6
ELEC 3100	Industrial Training	8 Weeks	0
ELEC 3069Y(5)	Signal Processing for Telecommunications	2+1	5

LEVEL 4 - Semester 1 & 2

Code	Core Module	Hrs/Wk	Credits
		L+P	
ELEC 4100Y(5)	Degree Project		12
ELEC 4059Y(5)	RF and Microwave Engineering	2+1	5
ELEC 4060Y(5)	Communications Security	2+1	5
ELEC 4061Y(5)	Optical Communications and Networking	2+1	5
ELEC 4134(5)	Regulation and Policy in the Telecommunications Industry (Semester 1)	3+0	3

Code	Electives – Engineering	Hrs/Wk	Credits
		L+P	
ELEC 4062Y(5)	Broadcasting Technologies	2+1	5
ELEC 4063Y(5)	Satellite Communications	2+1	5
ELEC 4064Y(5)	Next Generation Networks	2+1	5

NOTE: Students should take at least one (1) elective in Year 4.