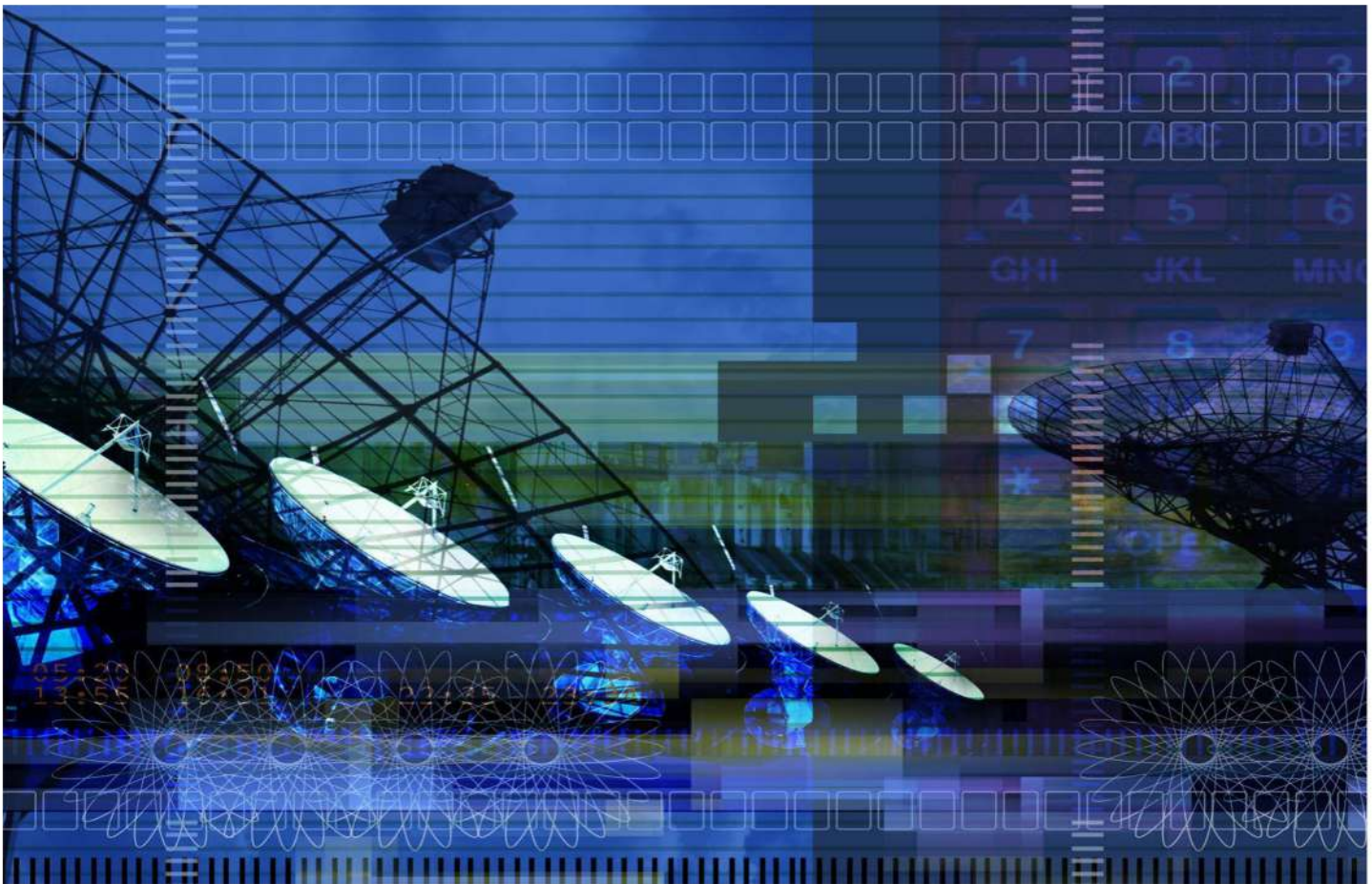




General Sir John Kotelawala
Defence University

FACULTY OF GRADUATE STUDIES



STUDENT'S HANDBOOK FOR MSc IN ELECTRONICS & TELECOMMUNICATION ENGINEERING DEGREE PROGRAMME

Key Appointments

a. **Chancellor**

General Gerard Hector de Silva (Retired) RWP VSV USP ndc

b. **Vice Chancellor**

Major General Milinda Peiris RWP RSP VSV USP ndc psc MPhil (Ind)
PGDM

c. **Deputy Vice Chancellor (Defence & Administration)**

Brigadier W Chandrasiri RSP USP psc

d. **Deputy Vice Chancellor (Academic)**

Prof. KAS Dhammika

PhD (Northern University of Malaysia), M.Com (Kelaniya), PGD in Business
Statistics (USJP), B.B.Mgt.(HR) (Kelaniya)

e. **Dean, Faculty of Graduate Studies**

Brigadier RGU Rajapakshe, RSP, psc

BSc (DS) KDA, MSc (DS) Kelaniya, MASSS (NDU) Washington DC

f. **Dean Faculty of Engineering**

Eng Capt (Rtd) SU Dampage

BSc (Hons) (E E Eng), M Eng (E & T), C Eng, FIE

g. **Registrar**

Mr VD Kithsiri

Executive Master of Business Administration (USJP), BSc (USJP), Post
Graduate Diploma in Management (USJP)

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Master of Science in Electronics & Telecommunication Engineering

Introduction

Faculty of Graduate Studies in collaboration with the Department of Electrical, Electronics & Telecommunication Engineering offers MSc in Electronics and Telecommunication Engineering. This postgraduate programme is conducted on Saturdays and Sundays for a period of one/two years. The first year is dedicated for taught course modules and second year is for both taught modules and the research project. The programme covers advanced topics in Electronics and Telecommunication Engineering.

Programme has been designed in accordance with the Sri Lankan Qualification Framework, published by the Ministry of Higher Education and its academic standard is equivalent to Sri Lanka Qualifying level 10. It has been designed by a panel of senior academics and professionals from reputed universities/institutions in Sri Lanka ensuring a high academic standard to facilitate participants to complete MSc in Electronics and Telecommunication Engineering Degree in two years even whilst being employed. The medium of instruction is English and all the lectures are webcast through the m-learning platform of KDU.

Objectives

To produce high quality Electronics and Telecommunication Engineering professionals who are capable of;

- a. Analyzing and solving complex engineering problems through a process of creative and innovative thinking,
- b. Planning and utilizing resources efficiently for sustainable development,
- c. Developing, conducting and managing engineering projects fulfilling national, social and environmental,
- d. Adapting to changing environment through self-learning and research,
- e. Functioning as a socially responsible senior professional.

Intended Learning Outcomes

To produce Electronics and Telecommunication Engineering professionals with the ability to,

- a. Investigate, analyze and solve complex problems in Electronics and Telecommunication Engineering by applying knowledge of basic science, engineering fundamentals and in-depth technical competence,
- b. Function effectively as a leader or manager or as an effective team member in multi-disciplinary and multi-cultural teams contributing to the community at large,
- c. Evaluate the impact of professional solutions in societal and environmental context while adhering to engineering standards, practices and ethics, recognizing the need for sustainable development in designing Engineering solutions for national and international requirements,

- d. Engage in independent and lifelong learning in the context of technological changes.

Programme Structure

The programme is designed with 40 credits for PG Diploma in the first year and additional 20 credit research project leading to MSc in second year. The classes are conducted on every other weekend of other than in public holidays from 0830 hrs to 1730 hrs.

The programme contains 11 compulsory subject modules and 6 optional subject modules. If a candidate intends to complete MSc in Electronics and Telecommunication Engineering Programme, he/she is required to complete all 11 compulsory subject modules, the dissertation and 3 optional subject modules out of 5.

How to Apply

A person who wishes to be a candidate of the MSc in Electronics and Telecommunication Engineering shall make an application to respective service commander / Inspector General of Police / Head of Department who will submit these applications to the Dean, Faculty of Graduate Studies with their recommendations. All applicants will be required to pass an aptitude test conducted by KDU.

By-Laws and Regulations

Nature of Degree

1. This degree is part-time and comes under the type of taught programmes.

Eligibility Criteria

2. Applicants satisfying ONE of the following requirements are eligible for admission:
 - a. Degree of Bachelor of Science in Engineering of four-year duration of General Sir John Kotelawala Defence University (KDU) in a relevant field, OR
 - b. Degree of Bachelor of Science (Defence Studies) in a relevant field with a minimum of three years of appropriate experience as an Engineer as approved by the Dean, Faculty of Engineering, KDU, OR
 - c. A Bachelor of Science Degree (SLQF 6) in a relevant field from a recognized University; OR
 - d. Associate Membership or above of Institution of Engineers Sri Lanka (IESL) AND a minimum of one year of appropriate experience after obtaining such membership as approved by the Dean, Faculty of Engineering, KDU, OR
 - e. Associate Membership or above of a professional Engineering Institute recognized by Institution of Engineers Sri Lanka (IESL) AND a minimum of one year of appropriate experience after obtaining such membership as approved by the Dean, Faculty of Engineering, KDU.
 - f. Any other Engineering Degree (SLQF 5) from a recognized university AND a minimum of one year of appropriate experience in relevant field after obtaining such a degree, as may be approved by the Senate.
 - g. A Higher Diploma (SLQF 4) in a relevant field with a minimum of three years of appropriate experience in a relevant field after obtaining such a higher diploma, as may be approved by the Senate.

Mode of Registration

3. The applicant shall register initially for the respective MSc/PG Diploma within the specified period after the BoS/Senate approval.
 - a. The initial registration shall be valid for three (03) academic years counted from the date of commencement of the programme of studies (hereinafter referred to as the initial period of registration) which can be extended for two (2) further consecutive years with annual registration by charging the registration fee for each year. This is to be applied even for the candidates who are permitted for absence of leave on duty exigencies/different reasons of personal nature.
 - b. An applicant may request a deferment of the registration to the next available intake for the approval of the BoS/Senate on the recommendation of the Faculty of Graduate Studies (FGS).

- c. The effective date of registration shall be the date of commencement of the programme, as announced by the FGS.
- d. If the academic requirements for the award of PG Diploma are not fulfilled within the current registration period, the student can opt to register for an extended year as far as the total period is within the maximum period for the PG Diploma stipulated in the Eligibility and Performance Criteria (EPC).
- e. Only the student registered for MSc/PG Diploma who fulfills the academic requirements for the award of the PG Diploma and satisfies the requirement stipulated in EPC can register for the MSc.
- f. If a student registered for MSc does not fulfill the academic requirements for the award of the MSc within the current year of registration, he or she may apply for an extension of the registration by another year within the maximum period stipulated for MSc in the EPC.

Re-registration

- 4. Re-registration of a student may be permitted by the BOM/Senate on a written request by the student.

Termination

- 5. Registration of a student will terminate automatically if the student fails to renew his/her registration, or the maximum duration of study stipulated in EPC has expired.
- 6. Registration of a student can be terminated by the Senate on the recommendation of the FGS for reasons of poor performance, or any other valid reason acceptable to the Senate. In such instance, sufficient evidence must be presented to the Senate to justify the termination.

Course Delivery Plan

- 7. The PG Diploma consists of the following:
 - a. A regular taught course of lectures at the university, normally 40 credits, as envisaged in the curriculum approved by the Senate;
 - b. Assignments, such as course work, project work, design-based work, laboratory work, tutorials, field trips and seminars, for which credits are allocated in section (a) as envisaged in the curriculum approved by the Senate.
- 8. MSc Degree shall consists of the following:
 - a. 7a and 7b above.
 - b. Research in a specified area under the guidance of a supervisor(s), normally 20 credits, the result of which is to be presented in the form of a dissertation or design project report as envisaged in the curriculum approved by the Senate.
- 9. Summary of the Course Delivery Plan is attached at the end of the by-laws.

Scheme of Evaluation

10. The performance of a candidate shall be assessed in individual modules, based on any one or combination of the following components:
- Written examination(s);
 - Assignments;
 - Examination of the Dissertation or design project report including a viva-voce examination where applicable.
11. If the performance of a student is below the pass mark specified in the EPC for (a), (b) or (c) above of a module, the student may be re-examined in that component after a period of time specified by the FGS.

Schedule of Fees

12. The schedule of fees shall be as laid down by the Board of Management (BOM) on the recommendation of the BOM/Senate and set out as a separate document. The applicable schedule of fees for a particular candidate shall be as determined at the time of initial registration of the candidate for the programme.

Award of PG Diploma

13. A student registered for MSc/PG diploma fulfilling the academic requirements for the award of PG Diploma is awarded the respective PG Diploma on application.
14. A student registered for MSc, who has not completed the requirement for the award of the MSc within the permitted duration **or** has been adjudged by the FGS as not meeting the standards required to pursue a MSc **or** has opted to discontinue the MSc is awarded the PG Diploma on application.

Award of MSc

15. A student registered for MSc fulfilling the academic requirements for the award of MSc is awarded the respective MSc on application.

Effective date of the award

16. The effective date of the award of the Degree/Diploma shall be the first day of the month following the satisfactory completion, by the candidate of the requirements for the award as specified in the EPC.

Note:

- ❖ **By-Laws and Regulations subject to amend as per the University Board of Management decisions.**

MSc in Electronics & Telecommunication Engineering Programme – Summary of the Course Delivery Plan

MSc in Electronics & Telecommunication Engineering Programme					
Code	Course Unit	Credits	Elective Credits	Lecture (Hrs)	Lab/Assig. (Hrs)
Semester I					
EE 9013	Statistical & Numerical Methods	3		40	15
EE 9022	Research Methodology I	2		30	0
EE 9034	Project Management	4		50	30
ET 9013	Communication Technology	3		40	15
ET 9023	Modern Wireless Networks	3		40	15
ET 9043	VLSI Design and Nanotechnology	2		25	15
Optional					
ET 9053	Advanced Digital System Design		3	40	15
ET 9073	Artificial Intelligence Techniques		3	40	15
Semester II					
ET 9113	Communication Networks and Stochastic Simulation	3		40	15
ET 9123	Microwave, Optical & Radar Engineering	3		40	15
EE 9113	Operation Research	3		35	30
EE 9122	Research Methodology II	2		25	15
EE 9133	Power Electronic Designs	3		40	15
Optional					
ET 9133	Network Management & Planning		3	40	15
ET 9143	Information Security and Cryptography		3	40	15
BM 9113	Medical Electronic and Biomedical Instrumentation		3	40	15
ET 9144	Deep Learning		3	40	15
		31	9/18		
ET 9999	Dissertation	20			
	Total	60			

Eligibility and Performance Criteria

Participation in the Academic Programme

17. Students are required to fulfill following requirements,
- 50% attendance is required in lectures.
 - Participation is compulsory for all assignments.
 - Prior approval must be obtained in writing from the university, with the necessary documentation for leave of absence. Only such leave will be considered for any official purpose, such as considering a subsequent attempt as a first attempt.
 - The programme is planned to be completed in the normal duration, but a student may take time up to the maximum permitted duration.
 - Only the leave approved on medical grounds will be considered by the Senate in extending the maximum duration of study.

Normal & Maximum Durations

18. Normal and maximum time duration for MSc/PG diploma programme as follows
- The normal duration for MSc is two years comprising two semesters.
 - The maximum duration for MSc is five years.
 - The normal duration for PG Diploma is one year comprising two semesters.
 - The maximum duration for PG Diploma is three years.

Evaluation and Grading

19. The performance of each student in each module will be evaluated by continuous assessments (CA) and end-of-semester examination (WE).
- The continuous assessments of a student may be based on a specified combination of assignments including coursework, project work, design project work, laboratory work, tutorials, field trips, field camps, quizzes, presentations, term papers and participation in course activities.
 - Each Candidate should obtain at least 40% from each of CA and WE components.
 - Grade C+ or above is required to pass a module.
 - A student failing to reach 40% in one of the CA or WE components, receives an incomplete grade I, and is required to repeat only the failed component(s) as a repeat candidate to complete the module.
 - A student failing to reach 40% in both CA and WE components receives an F grade, and must repeat both components in order to upgrade the result.
 - A student obtaining 40% or more in both components, but fails to obtain in a C+ grade has to repeat the WE component.

- g. The grades *F* or *I* can be improved up to a *C+* grade. Students who wish to upgrade need to complete their examinations and obtain the upgraded grade before the relevant final board of examinations after the graduation requirements are met.
- h. Except when an academic concession has been granted, the highest grade obtainable at a repeat attempt is the grade “C+”.
- j. The symbol “Ex” signifies an academic concession granted, in the event a student is unable to sit for the WE component due to illness or other compelling reason accepted by the BoS/Senate. In such instances, the student must make an appeal with supporting documents to the BoS/Senate through the Dean, Faculty of Graduate Studies for an academic concession.
- k. Letter grades based on the Grade Point System and corresponding description, as illustrated in the table below will be used to express the performance at each module. Benchmark percentages are given for the guidance of the examiner and may be changed upwards or downwards by the moderator in consultation with the examiner.

Benchmark Percentage	Grade	Grade Point	Description
85 and above	A+	4.2	Excellent
75 to 84	A	4.0	
70 to 74	A-	3.7	Good
65 to 69	B+	3.3	
60 to 64	B	3.0	
55 to 59	B-	2.7	Pass
50 to 54	C+	2.3	
	I	0.0	Incomplete
	F	0.0	Fail
	Ex	---	Academic Concession

Table of Grading System

- l. The Grade Point Average (GPA) is calculated based on the summation of Grade Points earned for all modules registered for credit (except those awarded with academic concession) weighted according to number of credits as follows:

$$GPA = \frac{\sum n_i \times g_i}{\sum n_i}$$

where n_i is the number of credits for the i^{th} module and g_i is the grade points earned for that module.

- m. The GPA is rounded to the nearest second decimal place and reported in the transcript.

Academic Concession

20. A student who has missed a WE or any other course requirement because of illness or other compelling reason may appeal for a repeat WE with supporting documents to the Dean, Faculty of Graduate Studies. In case of an examination, the student should submit an application with supporting documents within two weeks from the date of the examination. In instances where a student misses any other course activity such as CA, the student should submit the application with supporting documents before the last date of academic activities of the relevant semester.

21. An academic concession may be granted for medical reasons and other exceptional circumstances subject to the approval by the Senate of the university.

Academic requirements for the award of PG Diploma and progression to MSc

22. The candidate completes the academic requirement for the award of PG Diploma only if he/she has earned 40 credits including all compulsory credits specified in the course delivery plan below within the maximum duration (see normal and maximum durations above).

23. Those who satisfy the requirement in point No. 1 above with an overall GPA of not less than 2.5 can decide to proceed to 2nd year (MSc).

Award of PG Diploma

24. Following candidates are eligible for the award of respective PG Diplomas:

a. Those who satisfy the academic requirement for the award of respective PG Diploma and do not proceed to 2nd year (MSc).

b. Those who proceed to MSc but do not complete the requirements for the award of respective MSc within the stipulated maximum period (see normal and maximum durations above).

Award of MSc

25. The candidate is eligible for the award of MSc only if he/she has earned 60 Credits including all the compulsory credits specified in the respective curriculum within the maximum duration (see normal and maximum durations above).

Lecturer Panel

1. Prof M Vithanage

PhD (University of Copenhagen Denmark), MSc (University of Peradeniya), BSc Eng (University of Sabaragamuwa)

2. Prof WDAS Wijepala

MSc (University of Moratuwa), BSc (University of Moratuwa), FIE (SL), CEng, Int Peng(SL),

3. Dr RMKT Rathnayake

PhD (Wuhan University of Technology, China), MSc (Wuhan University of Technology, China), MSc (University of Sri Jayawardanapura) BSc Eng (University of Ruhuna)

4. Dr HH Samiru Gayan

PhD (University of Melbourne), MPhil (University of Moratuwa), BSc (University of Moratuwa)

5. DR S Thayaparan

PhdD (University of Hong Kong), BSc Eng (University of Moratuwa)

6. Dr WTLS Fernando

PhD (Nagaoka University of Technology, Japan), MSC Eng (Nagaoka University of Technology, Japan), BSc (University of Sri Jayawardanapura)

7. Eng Capt (Rtd)SU Dampage

BSc (Hons) (E E Eng), M Eng (E&T), C Eng, FIE

8. Mr YL Ganearachchi

MBA (University of Sri Jayawardenapura), BSc Eng (University of Peradeniya)

9. Ms Dilanka De Silva

MBA (Cardiff Metropolitan University), BSc Eng (University of Moratuwa)

10. Mr MUM Imran

MEng (RMIT University, Australia), BSc Eng(University of Ruhuna)

Contact Persons:

❖ Programme Coordinator (Academic)

Eng Capt (Rtd) SU Dampage
Dean, Faculty of Engineering
BSc (Hons) (EE Eng), MEng (E & T), C Eng, FIE

Tel : 0710219227
E-mail : dampage@gmail.com

❖ Coordinator (Admin)

Lieutenant Commander (ND) JPCJ De Silva psc
Staff Officer II, Faculty of Graduate Studies
MSc (D&SS)

Tel : 0710219325/0112632130
E-mail : soiifgs@kdu.ac.lk

Note:

- ❖ Lecturer panel subject to change as per the University requirements.