



**BSc (External) in
Electronics and
Automation Technologies**

GENERAL GUIDELINES



Open Distance Learning Centre
2026

Open Distance Learning Centre
Faculty of Science, University of Colombo
BSc (External) in Electronics and Automation Technologies

General Guidelines

1. Introduction

The BSc (External) in Electronics and Automation Technologies program offered by the Department of Physics, University of Colombo, has a total of ninety (90) credits, with thirty (30) credits from each of the levels (Level I, Level II, and Level III). The course units are composed of lecture-based and laboratory-based units. The medium of instruction is English.

2. Program Objectives

The BSc (External) in Electronics and Automation Technologies degree is designed for students aspiring to become professionals in the field of electronics and automation. Students pursuing this degree will not only learn fundamentals related to Electronics, Programming, Physics, Mathematics, and Statistics but also develop practical skills required to become competitive in the emerging technologically advanced job markets such as IoT. The development of soft skills is embedded in the curriculum, enabling our students to approach problems scientifically, to be innovative, and to become confident leaders in technology-driven global businesses.

3. Eligibility and Admission Criteria

GCE Advanced Level Examination (local): Three passes in one sitting in the Physical Science stream or Biological Science stream (Preference will be given to those who have done Mathematics)

OR

GCE Advanced Level Examination (local): Three passes in one sitting in the Technology Stream (Preference will be given to those who have done Engineering Technology and Science for Technology)

OR

Any other equivalent academic/professional qualification acceptable to the faculty and the senate (eg, Cambridge/Edexcel A/L, City and Guilds, HNDE, NVQ Level 4 course from a related discipline, etc.)

4. Program Duration

The duration of the program is 3 years. In each year, the program is conducted over 6 terms of 15 weeks. The lectures, lab classes, and exams are held on Sundays, while occasionally some lectures and exams might be held on Saturdays.

5. Evaluation Criteria

- The theory course modules are evaluated through written examinations and/or assignments where appropriate. In some instances, course units may require a mixed-mode evaluation, including continuous assessments.
- In the courses employing continuous assessments for student evaluation, eligibility to sit for the final examination requires above 40% of marks in the continuous assessment components, including the mid-examination.

6. Scheme of Evaluation

The Grade Point Average (GPA) is computed using grades assigned for all courses, including the research project. The minimum grade a student should achieve to pass a course unit is C. The grades shall be assigned as shown in 6.1.

6.1. Grade Points and GPA

The Grade Points shall be assigned using the following table.

Marks Range	Grade	Grade Point
85-100	A+	4.00
70- 84	A	4.00
65-69	A-	3.70
60-64	B+	3.30
55-59	B	3.00
50-54	B-	2.70
45-49	C+	2.30
40-44	C	2.00
35-39	C-	1.70
30-34	D+	1.30
25-29	D	1.00
00-24	E	0.00

The GPA shall be computed using the following formula: $GPA = \frac{\sum w_i g_i}{\sum w_i}$

$$\frac{\sum w_i g_i}{\sum w_i}$$

where w_i = number of credit units for the i^{th} course and g_i = grade points for the course.

6.1.1. Grading System for Enhancement/Intensive Courses

Enhancement/intensive courses carry only a letter grade as specified below and do not carry a Grade Point Value.

Marks Range	Letter Grade	Attainment
70- 100	H	Honors
55- 69	M	Meritorious
40- 54	S	Satisfactory

00- 39	U	Unsatisfactory
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6.1.2. Examination Results and Scrutinisatio

Examination results will be published through the Student Information System (SIS) and shall be considered final. However, if a student wishes to apply for re-correction/re-scrutinisatio, the request should be made through the SIS. Requests made through other means of communication shall not be considered.

6.2. Repeat Examinations

- In the event of examination failure, students shall repeat the examination during the next available opportunity.
- If a student retakes the examination and is concurrently registered for the subsequent level of the degree program, then they shall retake the examination at the next available opportunity. An additional fee of LKR 5000/- per paper should be levied, one month before the first quarter (first academic term) examination of each year.
- If a student retakes the examination and is not concurrently registered for the subsequent level of the degree program, a fee of LKR 100,000 will be levied for the examination retake.
- In the regular final academic year, if a student opts to retake an examination during a regular academic session, no additional fee will be incurred. However, should the student choose to repeat the examination during a non-regular academic session, a fee of LKR 100,000 will be levied.
- A student obtaining a grade below C shall re-sit the course examination for the purpose of improving the grade. The grades obtained in the first and subsequent attempts shall all be listed in the academic transcript. The highest grade obtained is used for the calculation of the final GPA. However, the highest grade considered for the determination of the award for a class is C.

- If a student is absent for the final examination of a course, AB (Absent) shall be assigned instead of a grade.
- If a student obtains an AB (absent) on the first attempt of the examination, then the next attempt shall be considered as the first attempt.
- Students registered in Level II or Level III who wish to repeat courses from other levels may do so only for a designated set of courses. The courses that may be repeated while a student is enrolled in a different academic year are as follows.

Course Code	Course Title	Status
EA1101	Analogue Electronics - I	Allowed
EA1102	Electronic Circuit Simulations	Allowed
EA1103	Sensors & Actuators	Allowed
EA1104	Introduction to Programming	Not Allowed
EA1105	Algorithms and Computations	Not Allowed
EA1106	Physics for Engineering	Allowed
EA1107	Measurements Laboratory	Not Allowed
EA1120	Analogue Electronics Laboratory	Not Allowed
EA1121	Digital Electronics Laboratory	Not Allowed
EA1130	Calculus	Allowed
EA1131	Probability and Statistics	Allowed
EA1140	Web Application Development I	Not Allowed
EA1150	Computer Applications	Allowed
EA1151	Creativity and Innovation	Allowed
EA2101	Analogue Electronics II	Allowed
EA2102	Computer Architecture	Allowed
EA2103	Data Communication Techniques	Allowed

EA2104	Digital Signal Processing	Allowed
EA2120	Microcontroller Laboratory	Not Allowed
EA2121	Sensors and wireless communication for IoT	Not Allowed
EA2122	Instrumentation Laboratory	Not Allowed
EA2130	Applied Numerical Methods	Allowed
EA2131	Data Analytics	Allowed
EA2140	Database Management	Not Allowed
EA2141	Mobile Application Development I	Not Allowed
EA2142	Computer networking	Allowed
EA2150	Business Economics	Allowed
EA2151	English for Communicating Science	Allowed

6.3. Maximum Allowed Period

The maximum stipulated period of the program of study leading to the Bachelor of Science (External) Degree in Electronics and Automation Technologies is nine (09) academic years from the first registration.

7. Certificate/Diploma/Degree Awarding Criteria

Level I: Certificate

- (a) Completion of a minimum of thirty (30) credits in Level I,
AND
- (b) Obtaining a grade not lower than C in course units aggregating to at least twenty (20) credits in Level I,
AND
- (c) Obtaining an overall GPA of 2.0 or above in Level I.

Level II: Certificate

(a) Meet requirements for Level I Certification,

AND

(b) Completion of a minimum of sixty (60) credits with at least 30 credits from Level II,

AND

(c) Obtaining a grade not lower than C in course units aggregating to at least twenty (20) from Level II,

AND

(d) Obtaining an overall GPA of 2.0 or above in Level II.

Diploma (SLOF Level 3)

(a) Completion of a minimum of thirty (30) credits of the course units in Level I,

AND

(b) Obtaining a grade not lower than C in course units aggregating to a total of 20 credits for a specified set of Level I courses indicated by * in Section 9,

AND

(c) Obtaining an overall GPA of 2.0 or above.

Advanced Diploma (SLOF Level 4)

(a) Completion of a minimum of sixty (60) credits of the course units in Level I and Level II,

AND

(b) Obtaining a grade not lower than C in course units aggregating to a total of 40 credits for a specified set of Level I and Level II course units indicated by * in Section 9,

AND

(c) Obtaining an overall GPA of 2.0 or above for the sixty (60) credits for Level I and Level II course units.

Degree (SLOF Level 5)

(a) Completion of a minimum of ninety (90) credits with at least thirty (30) credits from each of Levels I, II, and III.

AND

(b) Obtaining a minimum GPA of 2.0 in course units aggregating to at least twenty (20) credits at each of Level I, Level II, and Level III.

AND

(c) Obtaining a minimum overall GPA of 2.0 in Level I, Level II, and Level III taken together.

Awarding Classes

If a student satisfies the requirements for obtaining a degree within three (03) consecutive academic years of the External Degree Programme

AND

First Class: If a student has a minimum overall GPA of 3.70.

OR

Second Class (Upper Division): If a student has a minimum overall GPA of 3.30.

OR

Second Class (Lower Division): If a student has a minimum overall GPA of 3.00.

8. Examination Offences

- Examination offences fall into any of the following misconducts that shall be committed by students during the conduct of an examination. These include, but are not limited to:
 - ❖ Possession of unauthorised documents and/or devices
 - ❖ Removal of examination stationery from the examination hall
 - ❖ Copying
 - ❖ Obtaining or attempting to obtain improper assistance
 - ❖ Cheating or attempting to cheat
 - ❖ Impersonation
 - ❖ Disorderly conduct
 - ❖ Aiding and abetting the commission of any of the above offences.
- When submitting reports, dissertations, or any other evaluative assignments such as research projects, projects, or case studies, plagiarism is considered a serious offence, equivalent to an examination offence. Plagiarism is defined as:
 - ❖ Submitting another person's work as your own
 - ❖ Including another person's work (language, ideas, results, data, graphics, images, etc.) in your submissions without proper acknowledgement or citation
 - ❖ Copying another person's paragraphs or sentences into your work without any changes, even when the sources are cited
 - ❖ In cases where it is necessary to quote (copy word to word) a sentence or two of someone else's language, failure to put such sentences within quotation marks.
- Any candidate who is found guilty of an examination offence or plagiarism is liable to any one or more of the following punishments:
 - ❖ Removal of his/her name from the pass list
 - ❖ Cancellation of his/her candidacy for the whole or part of the examination
 - ❖ Suspension from any University examination for such period as the Senate shall decide, or indefinitely
 - ❖ Suspension from the University for such Period as the Senate shall decide, or expulsion from the University.

9. Course Modules

Level I in Electronics and Automation Technologies

Course Code	Title	Credits	Notional Hours
EA 1101	Analogue Electronics - I*	2C	100
EA 1102	Electronic Circuit Simulations*	2C	100
EA 1103	Sensors & Actuators*	2C	100
EA 1104	Introduction to Programming*	2C	100
EA 1105	Algorithms and Computations*	2C	100
EA 1106	Physics for Engineering*	2C	100
EA 1107	Measurements Laboratory*	2C	100
EA 1120	Analogue Electronics Laboratory*	3C	150
EA 1121	Digital Electronics Laboratory*	3C	150
EA 1130	Calculus	2C	100
EA 1131	Probability and Statistics	2C	100
EA 1140	Web Application Development I	2C	100
EA 1150	Computer Applications	2C	100
EA 1151	Creativity and Innovation	2C	100
EA 0040	Intensive English Course [†]		
EA 0050	Intensive Mathematics Course [†]		

*Compulsory courses to complete to obtain the diploma

[†]Intensive English and Mathematics courses conducted during the orientation period

Level II in Electronics and Automation Technologies

Course Code	Title	Credits	Notional Hours
EA 2101	Analogue Electronics - II*	2C	100
EA 2102	Computer Architecture*	2C	100
EA 2103	Data Communication Techniques*	2C	100
EA 2104	Digital Signal Processing*	2C	100
EA 2120	Microcontroller Laboratory*	3C	150
EA 2121	Sensors and wireless communication for IoT*	3C	150

Course Code	Title	Credits	Notional Hours
EA 2101	Analogue Electronics - II*	2C	100
EA 2122	Instrumentation Laboratory*	2C	100
EA 2130	Applied Numerical Methods*	2C	100
EA 2131	Data Analytics*	2C	100
EA 2140	Database Management	2C	100
EA 2141	Mobile Application Development I	2C	100
EA 2142	Computer networking	2C	100
EA 2150	Business Economics	2C	100
EA 2151	English for Communicating Science	2C	100

*Compulsory courses to complete to obtain the advanced diploma

Level III in Electronics and Automation Technologies

Course Code	Title	Credits	Notional Hours
EA 3101	Power Electronics	2C	100
EA 3102	Programmable Logic Controllers	2C	100
EA 3103	Advanced Fabrication Techniques	2C	100
EA 3104	Applied Machine Learning	2C	100
EA 3120	Data Acquisition for IoT	3C	150
EA 3121	Robotics Laboratory	3C	150
EA 3131	Multivariate Analysis	2C	100
EA 3140	Web Application Development II	2C	100
EA 3141	Mobile Application Development II	2C	100
EA 3142	Fundamentals of Cyber Security	2C	100
EA 3150	Entrepreneurship	2C	100
EA 3151	Business Communication	2C	100
EA 3160	Final Year Project	4C	500

10. General Information and Contact Details

Upon payment of the required registration fee for the academic year, students will be given the username and password of the SIS (Student Information System).

All the course materials and assignments will be made available on the LMS (Learning Management System).

All students registered in the SIS (Students Information System) can log on to the LMS using their registration number as the username and the password provided to the SIS.

All student requests should be made by sending an email to bsceat@sci.cmb.ac.lk. Requests made through other means of communication will not be considered.

Web address: External Degree, Faculty of Science
<https://science.cmb.ac.lk/edp/>

LMS (Lecture Management System)
<https://lms.sci.cmb.ac.lk/edphub/lms/>

SIS (Student's Information System)
<https://lms.sci.cmb.ac.lk/edphub/sims/>