

2. RATIONALE, AIMS AND INTENDED LEARNING OUTCOMES OF THE PROGRAMME

2.1. Rationale and Aims

The followings are the rationale and aims of the Programme:

- (i) This programme aims at producing graduates with the professional knowledge and skills that are relevant for a professional engineer to contribute to the electronic and information engineering profession.
- (ii) The curriculum enables the students to develop a deep understanding of sound scientific principles, and to gather experience in practical applications.
- (iii) The learning and teaching environment is flexible and relevant to support both professional and all-rounded developments of the students.
- (iv) The graduates will be able to develop abilities in effective communication, problem-solving, inquisitiveness, critical and creative thinking, and life-long learning.
- (v) The graduates are expected to be equipped with professional competence, all-rounded attributes and transferable skills, and be able to meet challenges from the rapidly changing engineering profession.

2.2. Institutional Learning Outcomes

It is PolyU's educational mission to nurture competent professionals who are also critical thinkers, effective communicators, innovative problem solvers, lifelong learners, and ethical leaders. The institutional learning outcomes for these attributes are provided as follows:

- 1. **Competent professional:** Graduates should be able to integrate and apply in practice the fundamental knowledge and skills required for functioning effectively as an entry-level professional.
- 2. **Critical thinker:** Graduates should be able to examine and critique the validity of information, arguments, and different viewpoints, and reach a sound judgment on the basis of credible evidence and logical reasoning.
- 3. **Effective communicator:** Graduates should be able to comprehend and communicate effectively in English and Chinese, orally and in writing, in professional and daily contexts.
- 4. **Innovative problem solver:** Graduates should be able to identify and define problems in professional and daily contexts, and produce creative and workable solutions to the problems.
- 5. **Lifelong learner:** Graduates should recognise the need for continual learning and self-development, and be able to plan, manage and improve their own learning in

pursuit of self-determined development goals.

6. **Ethical leader:** Graduates should have an understanding of leadership and be prepared to lead a team, and should acknowledge their responsibilities as professionals and citizens to the society and their own nation, and be able to demonstrate ethical reasoning in professional and daily contexts.

2.3. Intended Learning Outcomes of the Programme

On successful completion of the BEng(Hons) in Electronic and Information Engineering Programme, students will be able to:

Category A Professional/academic knowledge and skills

1. Apply knowledge of mathematics, science, and engineering appropriate to electronic and information engineering.
2. Design and conduct experiments, as well as to analyse and interpret data.
3. Design a system, component or process to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
4. Function on multi-disciplinary teams.
5. Identify, formulate and solve engineering problems.
6. Understand professional and ethical responsibility.
7. Communicate effectively.
8. Understand the impact of engineering solutions in a global and societal context, especially the importance of health, safety and environmental considerations to both workers and the general public.
9. Stay abreast of contemporary issues.
10. Recognize the need for, and to engage in life-long learning.
11. Use the techniques, skills, and modern engineering tools necessary for engineering practice appropriate to electronic and information engineering.
12. Use the computer/IT tools relevant to electronic and information engineering along with an understanding of their processes and limitations.

Category B Attributes for all-roundedness

13. Understand the creative process.
14. Exercise leadership when working in a team.

2.4. Relationship of Intended Learning Outcomes of the Programme to Institutional Learning Outcomes

The following table illustrates the relationship between Intended Learning Outcomes of the Programme and Institutional Learning Outcomes:

| Programme Outcomes | Institutional Learning Outcomes | | | | | |
|--------------------|---------------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | X | | | | | |
| 2 | X | X | | | | |
| 3 | X | X | | | | |
| 4 | | | | | | X |
| 5 | X | | | X | | |
| 6 | X | | | | | X |
| 7 | | | X | | | |
| 8 | X | | | | | X |
| 9 | | X | | | | |
| 10 | | | | | X | |
| 11 | X | | | | | |
| 12 | X | | | | | |
| 13 | | | | X | | |
| 14 | | | | | | X |