

**Minor Changes to the BEng (Hons) in Electronic and Information Engineering
(42470/42470-SY) (BEng in EIE) Programme Curriculum**

Background

The Department reviews the programme regularly to ensure the subjects of the curriculum match with the education background, needs and abilities of the students, align with the programme aims, objectives and intended learning outcomes, as well as cater to the demand for talents from the industries. In a recent review of the BEng (Hons) in Electronic and Information Engineering (BEng in EIE) (42470) programme curriculum, the Department considered that a number of minor changes could be introduced to the programme curriculum to serve the interests and abilities of BEng in EIE students better, and to modernize the programme curriculum with some of the latest technologies of the discipline.

1. Adding a Compulsory Subject “EIE3123 Dynamic Electronic Systems” to the BEng in EIE Curriculum, and Changing “EIE4413 Digital Signal Processing” from a Compulsory Subject to an Elective Subject

The Department has considered that an understanding of the dynamic characteristics of electronic systems and methods to shape them are essential to electronics engineers. However, subject of this kind has not been offered in the BEng in EIE programme and the inadequacy of students’ knowledge in this area has been generally reflected in their weakness in handling electronic hardware systems that require precise control, e.g. robotic motion and voltage regulation in electronic circuits. To fill this gap, the Department will introduce a new level 3 subject “EIE3123 Dynamic Electronic Systems” (Appendix I) to Year 3 Semester 1 of the normal 4-year curriculum and Year 1 Semester 1 of the senior-year curriculum as a compulsory subject to equip students with the relevant knowledge such as modelling of dynamic systems, transient response, stability, steady-state errors, design via locus techniques, design via frequency response techniques, tuning PID controllers and digital control systems, before doing the Integrated Project.

Adding EIE3123 to the curriculum will lead to an increase in the total number of credits required for graduation, unless an existing compulsory subject is changed into an elective subject, or the number of technical electives required is reduced. The Department has noted that “EIE4413 Digital Signal Processing”, a compulsory subject of the programme, has long been considered as a difficult subject by many students. Besides, it is the only level-4 compulsory subject (except “EIE4433 Honours Project”) in the programme. Students are expected to take the subject in Year 3 Semester 2 (normal year 1 entry) or Year 2 Semester 2 (senior year entry). In recent years, however, a few students were unable to handle this subject and requested for withdrawing the subject each year. The Department will therefore change EIE4413 from a compulsory subject to an elective subject so that eager students can choose to take this subject according to their interests and abilities.

The above changes will be applicable to students studying the normal 4-year BEng in EIE curriculum from 2018/19 intake and onwards, and students studying the senior year BEng in EIE curriculum from 2020/21 intake and onwards.

2. Removing “AMA2112 Mathematics II” from the 4-year Curriculum and Increasing the Number of Technical Electives Required for the 4-year Curriculum from 4 to 5

The Department is of the view that certain topics covered in “AMA2112 Mathematics II”, a compulsory subject of the 4-year curriculum, are no longer needed as the pre-requisite knowledge for other BEng in EIE subjects. For instance, multiple integrals and vector calculus served as the pre-requisite knowledge for students to learn the compulsory subject on applied electromagnetics previously. However, since the BEng in EIE no longer has a subject on applied electromagnetics, these two topics cease to be necessary.

As for the other topics, i.e. series expansion and partial differential equations, the related concepts can be covered in other EIE subjects such as “EIE3312 Linear Systems”. In fact, EIE Subject Lecturers often touch upon series expansion and partial differential equations during classes in view of the diversity of academic background of students taking the subjects. Students admitted to the BEng in EIE programme through the senior year entry may not have the chance to study series expansion and partial differential equations prior to admission to the programme and hence, EIE Subject Lecturers usually have to briefly teach these students about the relevant concepts. As such, the Department has considered that having a standalone subject AMA2112 is not required and thus it can be removed from the normal 4-year curriculum. To keep the total number of credits required for graduation unchanged, the number of required technical electives will be increased from 4 to 5 for the normal 4-year curriculum.

The updated specified progression patterns of the BEng in EIE (42470) programme after incorporating the above changes can be found in Appendix II.

Such changes will take immediate effect from 2019/20 and are expected to be applicable to 2018/19 intake cohort and onwards.

Subject Description Form

Subject Code	EIE3123
Subject Title	Dynamic Electronic Systems
Credit Value	3
Level	3
Pre-requisite / Co-requisite / Exclusion	Basic calculus
Objectives	<p>To enable students to gain knowledge and understanding in the following aspects:</p> <ol style="list-style-type: none"> 1. Modelling dynamic electronic systems using Laplace Transform technique. 2. Analysis of the stability, steady-state error, and transient response performances of dynamic electronic systems. 3. Using scientific computing software in control systems design. 4. Application of different feedback compensator design techniques to meet a set of given specifications. 5. Implementation of designed feedback compensator on real electronic systems and verify their performances.
Intended Subject Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <p><u>Category A: Professional/academic knowledge and skills</u></p> <ol style="list-style-type: none"> 1. Understand the fundamentals of dynamic electronic systems and the importance of feedback control. 2. Design feedback compensator to meet a set of given specifications and constraints. 3. Use scientific computing software to analyse dynamic electronic systems and solve control problems. 4. Implement feedback compensator on real electronic systems. <p><u>Category B: Attributes for all-roundedness</u></p> <ol style="list-style-type: none"> 5. Communicate effectively. 6. Think critically and creatively. 7. Work with others as a team during practical classes.
Subject Synopsis/ Indicative Syllabus	<p>Syllabus:</p> <ol style="list-style-type: none"> 1. <u>Modelling of Dynamic Systems</u> Laplace Transform; transfer functions; examples of modelling dynamic electronic systems. 2. <u>Transient Response</u> Poles and zeros; effect of pole locations; first-order systems; second-order systems; time-domain specifications; effects of zeros and additional poles. 3. <u>Stability</u> Stability of linear time-invariant systems; Routh-Hurwitz stability criterion; Nyquist stability criterion; stability margins. 4. <u>Steady-State Errors</u> Steady-state error for unity feedback systems; system types; static error constants; steady-state error for disturbances; steady-state error for non-unity feedback systems. 5. <u>Design via Root Locus Techniques</u> The root locus concept; properties of root locus; gain adjustment; lag compensation; lead compensation; lead-lag compensation.

6. Design via Frequency Response Techniques
Frequency response; Bode plots; gain adjustment; lag compensation; lead compensation; lead-lag compensation.
7. Tuning PID Controllers
Ziegler-Nichols tuning method; Cohen-Coon tuning method.
8. Digital Control Systems
Basic structure of digital control system, z-Transform, discrete transfer function, stability/steady-state error/transient performances of digital control systems, concept of discrete equivalents, digital compensator design in z-plane, implementation of digital compensator.

Laboratory Experiments:

1. Virtual (software-based) control lab
2. Mini-project

Teaching and Learning Method	Intended Subject Learning Outcome	Remarks
Lectures	1, 2, 3, 6	In lectures, students will be introduced to the fundamental knowledge of the subject, and comprehension is strengthened through interactive Q&A. They will be able to explain and generalize knowledge in the analysis and control design of dynamic electronic systems.
Tutorials	1, 2, 3, 5, 6	In tutorials, students will apply the knowledge learned in lectures in analysing the cases and solving the problems given by the tutor. They will analyse the given information, compare and contrast different scenarios and propose solutions or alternatives.
Mini-project (practical works)	1, 2, 3, 4, 5, 6, 7	Students will acquire hands-on skills in using scientific computing software to analyse dynamic electronic systems and design feedback compensator. They will apply the knowledge learned in lectures / tutorials to complete a mini-project on the design and implementation of feedback compensator on real electronic systems.
Take-home assignment	1, 2, 3, 5, 6	By working on take-home assignment, students will develop a firm understanding of the knowledge related to the subject. They will analyse the available information and apply the knowledge learned in solving problem. For some design problems, they will have to synthesize solutions by evaluating different alternatives.

**Assessment Methods
in Alignment with
Intended Learning
Outcomes**

Specific Assessment Methods/Tasks	% Weighting	Intended Subject Learning Outcomes to be Assessed (Please tick as appropriate)						
		1	2	3	4	5	6	7
1. Continuous Assessment (total 50%)								
• Take-home assignment	5%	✓	✓	✓		✓	✓	
• Mini-project	35%	✓	✓	✓	✓	✓	✓	✓
• Mid-semester test	10%	✓	✓				✓	
2. Examination	50%	✓	✓				✓	
Total	100 %							

The continuous assessment consists of one take-home assignment, one test, and one mini-project.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Specific Assessment Methods/Tasks	Remark
Take-home assignment	One take-home assignment will be given to students to assess their competence level of knowledge and comprehension, ability to analyze given information, ability to apply knowledge and skills in different situations, ability to synthesize structure, and ability to evaluate given data to make judgment. The criteria (i.e. what to be demonstrated) and level (i.e. the extent) of achievement will be graded according to six levels: (A+ and A), Good (B+ and B), Satisfactory (C+ and C), Marginal (D) and Failure (F). These will be made known to students before the assignment is handed out. Feedback about their performance will be given promptly to students to help them improve their learning.
Mini-project (practical works)	Students will be required to complete a mini-project and submit a report. The emphasis is on assessing their ability to use scientific computing tools to analyze dynamic electronic systems and design feedback compensator to meet a given set of specifications, and implement the design on real electronic systems. Expectation and grading criteria are similar to the case of take-home assignment.
Mid-semester test	There will be a mid-semester test to evaluate students' understanding and ability to apply all the key concept. Feedback about their performance will be given promptly to students to help them improve their learning. Expectation and grading criteria are similar to the case of take-home assignment.

Student Study Effort Expected	Class contact (time-tabled):	
	• Lecture	24 Hours
	• Tutorial/Laboratory/Practice Classes	15 Hours
	Other student study effort:	
	• Lecture: preview/review of notes; homework/assignment; preparation for test/quizzes/examination	36 Hours
	• Tutorial/Laboratory/Practice Classes: preview of materials, revision and/or reports writing	30 Hours
	Total student study effort:	105 Hours
Reading List and References	Reference Books: <ol style="list-style-type: none"> 1. Norman S. Nise, <i>Control Systems Engineering</i>, 7th ed., John Wiley and Sons, Inc., 2015. 2. Richard C. Dorf and Robert H. Bishop, <i>Modern Control Systems</i>, 13th ed., Pearson, 2016. 3. Gene F. Franklin, J. David Powell, and Abbas Emami-Naeini, <i>Feedback Control of Dynamic Systems</i>, 8th ed., Pearson, 2019. 4. K. Ogata, <i>Modern Control Engineering</i>, 5th ed., Prentice Hall, 2010. 5. Karl J. Astrom and Richard M. Murray, <i>Feedback Systems: An Introduction for Scientists and Engineers</i>, Princeton University Press, 2008. 	
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Prepared by	Dr K.H. Loo	

Proposed Programme Specified Subjects for BEng in EIE Programme

Subject Code	Subject Title	CR	Category of Subjects	
			Normal Year 1 Intake	Senior Year Intake
General University Requirements (GUR)				
-	Cluster-Area Requirement I (CAR I)	3	COM	COM
-	Cluster-Area Requirement II (CAR II)	3	COM	COM
-	Cluster-Area Requirement III (CAR III)	3	COM	-
-	Cluster-Area Requirement IV (CAR IV)	3	COM	-
-	Language and Communication Requirement I (LCR I) – English *	3	COM	-
-	Language and Communication Requirement II (LCR II) – English *	3	COM	-
-	Language and Communication Requirement III (LCR III) – Chinese *	3	COM	-
-	Leadership and Intra-Personal Development	3	COM	-
-	Service-Learning	3	COM	COM
ENG1003	Freshman Seminar for Engineering	3	COM	-
-	Healthy Lifestyle	0	COM	-
Discipline-Specific Requirement (DSR)				
AF3625	Engineering Economics	3	COM	COM
AMA1110	Basic Mathematics I – Calculus and Probability & Statistics	3	COM	-
AMA1120	Basic Mathematics II –Calculus and Linear algebra	3	COM	-
AMA2104	Probability and Engineering Statistics	3	COM	COM
AMA2111	Mathematics I	3	COM	-
AMA2112	Mathematics II	3	COM	-
AP10001	Introduction to Physics	3	COM ⁽¹⁾	-
AP10005	Physics I	3	COM	-
AP10006	Physics II	3	COM	-
CBS3241	Professional Communication in Chinese	2	COM	COM
EIE2100	Basic Circuit Analysis	3	COM ⁽³⁾	-
EE2002A/B	Circuit Analysis	3		
EIE2102	Basic Electronics	3	COM ⁽⁴⁾	-
EE2003A/B	Electronics	3		
EIE2211	Logic Design	3	COM	-
EIE3100	Analogue Circuit Fundamentals	3	COM	COM
EIE3105	Integrated Project	6	COM	COM
EIE3109	Mobile Systems and Application Development	3	ELE	ELE
EIE3112	Database System	3	ELE	ELE
EIE3305	Integrated Analogue and Digital Circuits	3	ELE	ELE
EIE3311	Computer System Fundamentals	3	COM	COM
EIE3312	Linear Systems	3	COM	COM
EIE3320	Object-Oriented Design and Programming	3	ELE	ELE
EIE3331	Communication Fundamentals	3	COM	COM
EIE3333	Data and Computer Communications	3	COM	COM
EIE3123	Dynamic Electronic Systems	3	COM	COM
EIE4100	Computer Vision and Pattern Recognition	3	ELE	ELE

Subject Code	Subject Title	CR	Category of Subjects	
			Normal Year 1 Intake	Senior Year Intake
EIE4102	IP Networks	3	ELE	ELE
EIE4104	Mobile Networking	3	ELE	ELE
EIE4105	Multimodal Human Computer Interaction Technology	3	ELE	ELE
EIE4106	Network Management and Security	3	ELE	ELE
EIE4108	Distributed Systems and Cloud Computing	3	ELE	ELE
EIE4110	Introduction to VLSI and Computer-Aided Circuit Design	3	ELE	ELE
EIE4112	Avionics Systems	3	ELE	ELE
EIE4113	Wireless and Mobile Systems	3	ELE	ELE
EIE4114	Digital Forensics for Crime Investigation	3	ELE	ELE
EIE4116	Surveillance Studies and Technologies	3	ELE	ELE
EIE4118	Intrusion Detection and Penetration Test	3	ELE	ELE
EIE4119	Mobile Device System Architecture	3	ELE	ELE
EIE4402	Power Electronics	3	ELE	ELE
EIE4413	Digital Signal Processing	3	COM ELE	COM ELE
EIE4432	Web Systems and Technologies	3	ELE	ELE
EIE4433	Honours Project	6	COM	COM
EIE4435	Image and Audio Processing	3	ELE	ELE
EIE4449	Optical Communication Systems and Networks	3	ELE	ELE
ELC3521	Professional Communication in English	2	COM	COM
ENG2001	Fundamentals of Materials Science and Engineering	3	COM ⁽²⁾ (Select any 1 subject out of these 6 subjects)	-
ABCT1101	Introductory Life Science	3		
ABCT1301	Chemistry and Modern Living	3		
ABCT1314	Chemistry and Sustainable Development	3		
ABCT1303	Biotechnology and Human Health	3		
BME11101	Bionic Human and the Future of Being Human	3		
ENG2002	Computer Programming	3	COM	-
ENG2003	Information Technology	3	COM	-
ENG3003	Engineering Management	3	COM	COM
ENG3004	Society and The Engineer	3	COM	COM
ENG4001	Project Management	3	ELE	ELE
IC2114	Industrial Centre Training I for EIE	5	TRN	TRN
IC382	Multidisciplinary Manufacturing Project	3	TRN	TRN

Note:

AF	School of Accounting and Finance
ABCT	Department of Applied Biology and Chemical Technology
AMA	Department of Applied Mathematics
AP	Department of Applied Physics
BME	Interdisciplinary Division of Biomedical Engineering
CBS	Department of Chinese and Bilingual Studies
COM	Compulsory
EIE	Department of Electronic and Information Engineering
ELC	English Language Centre
ELE	Elective
ENG	Faculty of Engineering
IC	Industrial Centre
TRN	Training

- * Details of the Language and Communication Requirement (LCR) are set out in Section 4.2. of the Programme Booklet.
- (1) For HKDSE students who do not have Level 2 or above in HKDSE Physics or Combined Science with Physics, and non-local students from the Chinese Mainland who do not have a Pass (a pass is taken as 60% of the total marks of the subject) in the Physics or Integrated Science subject in the Joint Entrance Examination for Universities only.
- (2) Students should choose 1 subject in either “Engineering Materials”, “Biology” or “Chemistry”:
 Engineering Materials: ENG2001 Fundamentals of Materials Science and Engineering
 Biology: ABCT1101 Introductory Life Science
 ABCT1303 Biotechnology and Human Health
 BME11101 Bionic Human and the Future of Being Human
 Chemistry: ABCT1301 Chemistry and Modern Living
 ABCT1314 Chemistry and Sustainable Development
 Students choosing any one of the five subjects in the “Biology” and “Chemistry” areas will have the subject double-counted towards the fulfilment of both the Discipline-Specific Requirement (DSR) and CAR-D (Science, Technology and Environment). They are required to choose any 3-credit subject (from level 1 to level 4) to make up for the total credit requirement.
- (3) Students will take EIE2100 Basic Circuit Analysis by default but they will be allowed to choose EE2002A/B Circuit Analysis in case they cannot take EIE2100 due to reasons such as time-table clash, need to retake immediately in succeeding semester after failure, etc.
- (4) Students will take EIE2102 Basic Electronics by default but they will be allowed to choose EE2003A/B Electronics in case they cannot take EIE2102 due to reasons such as time-table clash, need to retake immediately in succeeding semester after failure, etc.

SPECIFIED PROGRESSION PATTERN

Applicable to 2018/19 and 2019/20 Intake Cohorts

1 Normal Year 1 Intake:

- HKDSE students who have Level 2 or above in HKDSE Physics or Combined Science with Physics
- Non-local students from the Chinese Mainland who have a Pass (a pass is taken as 60% of the total marks of the subject) in the Physics or Integrated Science subject in the Joint Entrance Examination for Universities

Year 1	
Semester 1 (12 credits)	Semester 2 (18 credits)
IC2114 Industrial Centre Training I for EIE (5 training credits)	
AMA1110 Basic Mathematics I – Calculus and Probability & Statistics (3 credits)	AMA1120 Basic Mathematics II – Calculus and Linear algebra (3 credits)
AP10005 Physics I (3 credits)	AP10006 Physics II (3 credits)
ENG1003 Freshman Seminar for Engineering (3 credits)	CAR I (3 credits) ^{Note 1}
LCR I – English (3 credits)	ENG2003 Information Technology (3 credits)
	LCR II – English (3 credits)
	Leadership and Intra-Personal Development (3 credits)
Healthy Lifestyle (0 credit) ^{Note 1}	
Year 2	
Semester 1 (18 credits)	Semester 2 (15 credits)
IC2114 Industrial Centre Training I for EIE (continued)	
AMA2111 Mathematics I (3 credits)	AF3625 Engineering Economics (3 credits)
CAR II (3 credits) ^{Note 1}	AMA2112 Mathematics II (3 credits) CAR III (3 credits) ^{Note 1}
EIE2100 Basic Circuit Analysis (3 credits)	EIE2102 Basic Electronics (3 credits)
ENG2002 Computer Programming (3 credits)	EIE2211 Logic Design (3 credits)
LCR III – Chinese (3 credits)	EIE3312 Linear Systems (3 credits) AMA2104 Probability and Engineering Statistics (3 credits)
Choose one subject in either “Engineering Materials”, “Biology” or “Chemistry” (3 credits)	
Year 3	
Semester 1 (45 18 credits)	Semester 2 (48 15 credits)
EIE3105 Integrated Project (6 credits)	
IC382 Multidisciplinary Manufacturing Project (3 training credits)	
AMA2104 Probability and Engineering Statistics (3 credits) EIE3312 Linear Systems (3 credits)	EIE3331 Communication Fundamentals (3 credits)
EIE3100 Analogue Circuit Fundamentals (3 credits)	EIE4413 Digital Signal Processing (3 credits) Service-Learning (3 credits) ^{Note 1}
EIE3311 Computer System Fundamentals (3 credits)	Technical Elective 1 (3 credits) ^{Note 2}
Service-Learning (3 credits) ^{Note 4} EIE3123 Dynamic Electronic Systems (3 credits)	EIE3333 Data and Computer Communications (3 credits)
EIE3333 Data and Computer Communications (3 credits)	CAR III (3 credits) ^{Note 4} Technical Elective 2 (3 credits) ^{Note 2}
Year 4	
Semester 1 (15 credits)	Semester 2 (13 credits)
EIE4433 Honours Project (6 credits)	
CAR IV (3 credits) ^{Note 1}	CBS3241P Professional Communication in Chinese (2 credits)
ENG3003 Engineering Management (3 credits)	ELC3521 Professional Communication in English (2 credits)
Technical Elective 3 (3 credits) ^{Note 2}	ENG3004 Society and the Engineer (3 credits)
Technical Elective 4 (3 credits) ^{Note 2}	Technical Elective 5 (3 credits) ^{Note 2}

Total Number of Credits: 124

Note 1: The study pattern for the subjects is indicative only. Students may take these subjects according to their own schedule. They are recommended to consult their Academic Advisor for guidance and planning if necessary.

Note 2: At least 3 technical electives must be at level 4 or above.

Note 3: The programme has been granted full accreditation from the Hong Kong Institution of Engineers (HKIE). Graduates of the programme satisfy the academic requirements for Corporate Membership of the HKIE.

2 Normal Year 1 Intake:

Applicable to 2018/19 and 2019/20 Intake Cohorts

- HKDSE students who do not have Level 2 or above in HKDSE Physics or Combined Science with Physics
- Non-local students from the Chinese Mainland who do not have a Pass (a pass is taken as 60% of the total marks of the subject) in the Physics or Integrated Science subject in the Joint Entrance Examination for Universities

Year 1	
Semester 1 (12 credits)	Semester 2 (18 credits)
IC2114 Industrial Centre Training I for EIE (5 training credits)	
AMA1110 Basic Mathematics I – Calculus and Probability & Statistics (3 credits)	AMA1120 Basic Mathematics II – Calculus and Linear algebra (3 credits)
AP10001 Introduction to Physics (3 credits)	AP10006 Physics II (3 credits)
ENG1003 Freshman Seminar for Engineering (3 credits)	CAR I (3 credits) ^{Note 1}
LCR I – English (3 credits)	LCR II – English (3 credits)
	ENG2003 Information Technology (3 credits)
	Leadership and Intra-Personal Development (3 credits)
Healthy Lifestyle (0 credit) ^{Note 1}	
Year 2	
Semester 1 (18 credits)	Semester 2 (15 credits)
IC2114 Industrial Centre Training I for EIE (continued)	
AMA2111 Mathematics I (3 credits)	AF3625 Engineering Economics (3 credits)
AP10005 Physics I (3 credits)	AMA2112 Mathematics II (3 credits) CAR II (3 credits) ^{Note 1}
EIE2100 Basic Circuit Analysis (3 credits)	EIE2102 Basic Electronics (3 credits)
ENG2002 Computer Programming (3 credits)	EIE2211 Logic Design (3 credits)
LCR III – Chinese (3 credits)	EIE3312 Linear Systems (3 credits) AMA2104 Probability and Engineering Statistics (3 credits)
Choose one subject in either “Engineering Materials”, “Biology” or “Chemistry” (3 credits)	
Year 3	
Semester 1 (15 18 credits)	Semester 2 (18 15 credits)
EIE3105 Integrated Project (6 credits)	
IC382 Multidisciplinary Manufacturing Project (3 training credits)	
CAR II (3 credits) ^{Note 1} EIE3123 Dynamic Electronic Systems	EIE3331 Communication Fundamentals (3 credits)
AMA2104 Probability and Engineering Statistics (3 credits) EIE3312 Linear Systems (3 credits)	EIE4413 Digital Signal Processing (3 credits) Technical Elective 1 (3 credits) ^{Note 2}
EIE3100 Analogue Circuit Fundamentals (3 credits)	Service-Learning (3 credits) ^{Note 1}
EIE3311 Computer System Fundamentals (3 credits)	Technical Elective 2 (3 credits) ^{Note 2}
EIE3333 Data and Computer Communications (3 credits)	EIE3333 Data and Computer Communications (3 credits)
Year 4	
Semester 1 (15 credits)	Semester 2 (16 credits)
EIE4433 Honours Project (6 credits)	
CAR III (3 credits) ^{Note 1}	CAR IV (3 credits) ^{Note 1}
ENG3003 Engineering Management (3 credits)	CBS3241P Professional Communication in Chinese (2 credits)
Technical Elective 3 (3 credits) ^{Note 2}	ELC3521 Professional Communication in English (2 credits)
Technical Elective 4 (3 credits) ^{Note 2}	ENG3004 Society and the Engineer (3 credits)
	Technical Elective 5 (3 credits) ^{Note 2}

Total Number of Credits: 127

Note 1: The study pattern for the subjects is indicative only. Students may take these subjects according to their own schedule. They are recommended to consult their Academic Advisor for guidance and planning if necessary.

Note 2: At least 3 technical electives must be at level 4 or above.

Note 3: Note 3: The programme has been granted full accreditation from the Hong Kong Institution of Engineers (HKIE). Graduates of the programme satisfy the academic requirements for Corporate Membership of the HKIE.

3 Senior Year Intake:

Applicable to 2020/21 Intake Cohort and onwards

- For Senior Year students with relevant Higher Diploma/Associate Degree from a recognized institution ^{Note 3}

Year 1	
Semester 1 (45 18 credits)	Semester 2 (48 15 credits)
EIE3105 Integrated Project (6 credits)	
AMA2104 Probability and Engineering Statistics (3 credits) EIE3312 Linear Systems (3 credits)	EIE3312 Linear Systems (3 credits) AMA2104 Probability and Engineering Statistics (3 credits)
EIE3100 Analogue Circuit Fundamentals (3 credits)	EIE3331 Communication Fundamentals (3 credits)
EIE3311 Computer System Fundamentals (3 credits)	ENG3004 Society and the Engineer (3 credits)
Service-Learning (3 credits) EIE3123 Dynamic Electronic Systems (3 credits)	Technical Elective 1 (3 credits) ^{Note 2}
EIE3333 Data and Computer Communications (3 credits)	EIE3333 Data and Computer Communications (3 credits)
IC2114 Industrial Centre Training I for EIE (5 training credits)	IC2114 Industrial Centre Training I for EIE (continued)
Year 2	
Semester 1 (18 credits)	Semester 2 (16 credits)
EIE4433 Honours Project (6 credits)	
AF3625 Engineering Economics (3 credits)	CAR II (3 credits) ^{Note 1,4}
CAR I (3 credits) ^{Note 1, 4} Service-Learning (3 credits)	CBS3241P Professional Communication in Chinese (2 credits)
ENG3003 Engineering Management (3 credits)	EIE4413 Digital Signal Processing (3 credits) -CAR I (3 credits) ^{Note 1, 4}
Technical Elective 2 (3 credits) ^{Note 2}	ELC3521 Professional Communication in English (2 credits)
Technical Elective 3 (3 credits) ^{Note 2}	Technical Elective 4 (3 credits) ^{Note 2}
IC382 Multidisciplinary Manufacturing Project (3 training credits)	IC382 Multidisciplinary Manufacturing Project (continued)

Total Number of Credits: 67 ^{Note 5}

Note 1: The study pattern for the subjects is indicative only. Students may take these subjects according to their own schedule. They are recommended to consult their Academic Advisor for guidance and planning if necessary.

Note 2: At least 2 technical electives must be at level 4 or above.

Note 3: This is an example only, which shows a possible study pattern for graduates with relevant Higher Diploma/Associate Degree from a recognized institution. The exact study pattern for senior year intakes varies from student to student depending on the approved subjects transferred.

Note 4: 6 credits of Cluster Areas Requirement (CAR) from two different cluster areas. Students also need to fulfil the English and Chinese reading and writing requirements and take 3 of the 6 CAR credits designated as "China-related" (China Studies Requirement), if such requirements have not been fulfilled in previous studies.

Note 5: The credits required and progression pattern presented above are for students who have been given credit transfer of the 9 credits Undergraduate Degree LCR subjects based upon their previous studies. Students not meeting the equivalent standard of the Undergraduate Degree LCR will be required to take the required subjects. Details on the Undergraduate Degree LCR subjects are given in section 4.2 of this booklet.

Note 6: The programme has been granted full accreditation from the Hong Kong Institution of Engineers (HKIE). Graduates of the programme satisfy the academic requirements for Corporate Membership of the HKIE.