### Useful Numbers

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acting Head of Department</td>
<td>Prof. V.O.K. Li</td>
<td>2857 8425</td>
</tr>
<tr>
<td>EComE Programme Directors</td>
<td>Prof. T.S. Ng</td>
<td>2859 2710</td>
</tr>
<tr>
<td></td>
<td>Dr. T.I. Yuk</td>
<td>2859 7098</td>
</tr>
<tr>
<td>InfoE Programme Directors</td>
<td>Prof. V.O.K. Li</td>
<td>2857 8425</td>
</tr>
<tr>
<td></td>
<td>Prof. L.K. Yeung</td>
<td>2857 8493</td>
</tr>
<tr>
<td>EE Programme Directors</td>
<td>Prof. K.T. Chau</td>
<td>2859 2704</td>
</tr>
<tr>
<td></td>
<td>Dr. J. Zhong</td>
<td>2857 8487</td>
</tr>
<tr>
<td>CE Programme Directors</td>
<td>Dr. C.H. Leung</td>
<td>2859 7097</td>
</tr>
<tr>
<td></td>
<td>Dr. E.Y.M Lam</td>
<td>2241 5942</td>
</tr>
<tr>
<td>Minor Options and Double Degree Coordinator</td>
<td>Dr. P.W.T. Pong</td>
<td>2857 8491</td>
</tr>
<tr>
<td>Admissions Tutors</td>
<td>Mr. P.C. Chui</td>
<td>2859 2699</td>
</tr>
<tr>
<td></td>
<td>Dr. N. Wong</td>
<td>2859 1914</td>
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<tr>
<td></td>
<td>Dr. K.Y. Wong</td>
<td>2857 8483</td>
</tr>
<tr>
<td>Chairman, Staff-student Consultative Committee</td>
<td>Dr. N.H.C. Yung</td>
<td>2859 2685</td>
</tr>
<tr>
<td>EComE-I Class Tutor</td>
<td>Dr. W.H. Lam</td>
<td>2859 1912</td>
</tr>
<tr>
<td>EComE-II Class Tutor</td>
<td>Dr. W.C.H. Choy</td>
<td>2857 8485</td>
</tr>
<tr>
<td>EComE-III Class Tutor</td>
<td>Dr. T.I. Yuk</td>
<td>2859 7098</td>
</tr>
<tr>
<td>InfoE-I Class Tutor</td>
<td>Dr. Y.C. Wu</td>
<td>2859 7090</td>
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<tr>
<td>InfoE-II Class Tutor</td>
<td>Dr. L. Jiang</td>
<td>2857 8484</td>
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<td>Dr. K.M. Tsia</td>
<td>2857 8486</td>
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<td>2859 2685</td>
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<td>CE-III Class Tutor</td>
<td>Dr. C.H. Leung</td>
<td>2859 7097</td>
</tr>
<tr>
<td>Senior Computer Officer</td>
<td>Dr. S.P.H. Lui</td>
<td>2859 1913</td>
</tr>
<tr>
<td>Technical Manager</td>
<td>Mr. T.T.O. Kwan</td>
<td>2859 2694</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td>Ms. Q.K.Y. Chan</td>
<td>2859 2715</td>
</tr>
<tr>
<td>General Enquiries</td>
<td></td>
<td>2859 7093</td>
</tr>
<tr>
<td>Department Fax Number</td>
<td></td>
<td>2559 8738</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:eee@eee.hku.hk">eee@eee.hku.hk</a></td>
<td></td>
</tr>
<tr>
<td>Department Home Page</td>
<td><a href="http://www.eee.hku.hk">http://www.eee.hku.hk</a></td>
<td></td>
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</table>
Foreword

This Handbook contains a summary of the undergraduate programmes in the Department of Electrical and Electronic Engineering.

The Department offers four BEng degree programmes, namely Computer Engineering, Electronic and Communications Engineering, Electrical Engineering and Information Engineering. Through a common admission scheme run by the Faculty of Engineering, students are given the flexibility of selecting any one of our four degree programmes (among programmes offered by other engineering departments) after the first semester of their first year of study. While the four programmes have a common foundation in electrical and electronic engineering with some common core courses in the first year, each programme has its own characteristics with different focused areas of study. Depending on the specific programme, students will be offered, in the second and third years of studies, choices of optional courses from a wide spectrum of topics encompassing computer systems, microelectronics, opto-electronics, wireless communications, networking, multimedia signal processing, information technology, energy conversion, power systems, control systems, biomedical engineering and others.

Since 2005, the Faculty has introduced a minor option, whereby students can choose to study for a minor programme in business, economics or finance by taking additional courses. In 2007, the Faculty further introduced double-degree programmes leading to the award of BEng and BBA degrees. The minor programmes and double-degree programmes provide valuable opportunities for students with interests beyond engineering to extend their university education to business studies. All these optional modes of studies reflect a trend towards a more general and multi-disciplinary approach to engineering education with plenty of scope to cater for the development of individual interests and needs.

The mission of the Department is to produce the highest quality graduates to serve the society, and to conduct leading edge research. Our educational philosophy is to equip students with problem solving skills and life-long learning capabilities. The Department is committed to assist students throughout their studies to learn and to develop as whole persons.

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1. Introduction to the Department of Electrical & Electronic Engineering

1.1 The Department

The Department of Electrical and Electronic Engineering is located on LG2, LG3, 1st, 2nd, 5th, 6th, 7th and 8th floor of the Chow Yei Ching Building, 3rd floor of the Haking Wong Building, 4th floor of the Yam Pak Building and CP-1 of the Composite Building. The Department offers the Bachelor of Engineering (B.Eng.) degree in Electronic and Communications Engineering, B.Eng. degree in Information Engineering, B.Eng. degree in Electrical Engineering, B.Eng. degree in Computer Engineering (jointly run with the Department of Computer Science) and B.Eng. in Medical Engineering (jointly run with the Department of Mechanical Engineering). These programmes are accredited by the Hong Kong Institution of Engineers (HKIE). The Department also offers the degree of Master of Science in Engineering (M.Sc.(Eng.)) in Electrical and Electronic Engineering and jointly offers the degrees of M.Sc. (Eng.) in Building Services, M.Sc. (Eng) in Energy Engineering and M.Sc. in Electronic Commerce and Internet Computing with the other Engineering Departments in the Faculty. These courses have well-structured programmes of study spanning over twenty-four months.

Currently over 100 research students are studying for the Ph.D. and M.Phil degrees in the Department and most of them are financially supported through Postgraduate Studentships, Teaching Assistantships or Research Assistantships. Currently, there are a total of 43 academic staff and 30 support staff.

1.2 Teaching Staff

Among the 43 teaching staff of the department, there are 4 Chair Professors, 8 Professors, 22 Associate Professors/Assistant Professors/Lecturers, 4 Senior Teaching Consultants/Teaching Consultants and 5 Research Assistant Professors. Professor V.O.K. Li is the Acting Head of Department, Professor W.C. Chew is the Chair of Electromagnetics, Professor V.O.K. Li is the Chair of Information Engineering, Professor T.S. Ng is the Chair of Electronic Engineering, and Professor R.S.Y. Hui is the Chair Professor. The teaching staff members are:

<table>
<thead>
<tr>
<th>Name</th>
<th>Rm. No.</th>
<th>Tel. No.</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. S.C. Chan</td>
<td>702</td>
<td>28598025</td>
<td><a href="mailto:scchan@eee.hku.hk">scchan@eee.hku.hk</a></td>
</tr>
<tr>
<td>Dr. C.Q. Chang</td>
<td>518</td>
<td>28578481</td>
<td><a href="mailto:cqchang@eee.hku.hk">cqchang@eee.hku.hk</a></td>
</tr>
<tr>
<td>Prof. K.T. Chau</td>
<td>709</td>
<td>28592704</td>
<td><a href="mailto:ktchau@eee.hku.hk">ktchau@eee.hku.hk</a></td>
</tr>
<tr>
<td>Dr. G. Chesi</td>
<td>609</td>
<td>22194362</td>
<td><a href="mailto:chesi@eee.hku.hk">chesi@eee.hku.hk</a></td>
</tr>
<tr>
<td>Prof. P.Y.S. Cheung</td>
<td>601C</td>
<td>28592700</td>
<td><a href="mailto:cheung@eee.hku.hk">cheung@eee.hku.hk</a></td>
</tr>
<tr>
<td>Dr. S.W. Cheung</td>
<td>506</td>
<td>28592425</td>
<td><a href="mailto:swcheung@eee.hku.hk">swcheung@eee.hku.hk</a></td>
</tr>
<tr>
<td>Prof. W.C. Chew</td>
<td>204D</td>
<td>22415682</td>
<td><a href="mailto:wcchew@hku.hk">wcchew@hku.hk</a></td>
</tr>
<tr>
<td>Dr. A.H.W. Choi</td>
<td>716</td>
<td>28592693</td>
<td><a href="mailto:hwchoi@eee.hku.hk">hwchoi@eee.hku.hk</a></td>
</tr>
<tr>
<td>Dr. W.C.H. Choy</td>
<td>721</td>
<td>28578485</td>
<td><a href="mailto:chchoy@eee.hku.hk">chchoy@eee.hku.hk</a></td>
</tr>
<tr>
<td>Mr. P.C. Chui</td>
<td>502</td>
<td>28592699</td>
<td><a href="mailto:pccchi@eee.hku.hk">pccchi@eee.hku.hk</a></td>
</tr>
<tr>
<td>Dr. W.W.T. Fok</td>
<td>703</td>
<td>28578490</td>
<td><a href="mailto:wtfok@eee.hku.hk">wtfok@eee.hku.hk</a></td>
</tr>
<tr>
<td>Dr. Y. Hou</td>
<td>522</td>
<td>28578489</td>
<td><a href="mailto:yhhou@eee.hku.hk">yhhou@eee.hku.hk</a></td>
</tr>
<tr>
<td>Prof. R.S.Y. Hui</td>
<td>601E</td>
<td>28592706</td>
<td><a href="mailto:ronhui@eee.hku.hk">ronhui@eee.hku.hk</a></td>
</tr>
<tr>
<td>Prof. Y.S. Hung</td>
<td>710</td>
<td>28592675</td>
<td><a href="mailto:yshung@eee.hku.hk">yshung@eee.hku.hk</a></td>
</tr>
</tbody>
</table>
1.3 Laboratories

Laboratory  

EEE Service Workshop  
Office of Workshop  
Central Equipment Room  
Centre for Electrical Energy Systems  
Industrial Electronics Lab.  
Electrical Energy Utilization Lab.  
Optoelectronics/Electro-Optics Lab.  
Integrated Project Lab. B,  
Postgraduate Research Lab. B  
EEE Part I Lab.  
PC Workstation Lab.  
EEE Part II Lab.  
EEE Part III Lab.  
Postdoctoral Fellow Research Lab.  
Integrated Project Lab.-A  
Electromagnetics Lab.  
Biomedical Engineering Lab.

Location  

Chow Yei Ching Bldg.  
LG301  
LG301A  
LG303  
LG201  
LG202  
LG203  
LG204  
LG205  
101  
102  
103  
104  
201  
202  
203  
204  
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Applied Life Photonic at HKU (Alpha HKU)  
Control System Research Lab.  
Industrial Automation Research Lab.  
Control Lab.  
Imaging Systems Lab.  
The Lab. of Biomedical Imaging and Signal Processing—Data Analysis Lab.  
Digital Image Processing & Pattern Recognition Lab.  
Multimedia Networking Lab.  
Device & Process Simulation Lab.  
Photonics Systems Research Lab.  
DSPS Technology Centre / Multimedia Lab.  
Semiconductor Lighting and Display Lab.  
Staff Workstation Lab.  
Digital Signal Processing Lab.  
Spread Spectrum Research Lab.  
Audio Engineering Lab.  
Telecommunication Lab.  
Microwave/ RF Engineering Lab.  
Computer Lab.  
Broadband Networking Lab.  
VLSI Design Lab.  
Industrial System Development Unit  
Postgraduate Research Lab. -A  
Computer Architecture and System Research Lab.  

Power Electronics Lab.  
Electric Traction Lab.  
Electric Drives Lab.  
Electrical Services Application Lab.  
Radio Frequency Lab.  
Modern Lighting Lab.  
High Voltage Lab.  
Smart Power Grid Lab.  

Initiative on Clean Energy and Environment  
Building Services Lab.  
Integrated Circuit/Thin Film Lab.  
Solid State Electronics/Photo-Voltaic Lab.  

Electric Vehicle Research Lab.  

Biomedical Imaging and Signal Processing—7T MRI Lab.
2. Time-Table and Lectures

You will be given a time-table by the Faculty of Engineering which consists of lecture sessions of all the five engineering departments. You should note carefully the time and venue of the sessions relevant to you and attend your lectures as stated on the time-table punctually. Please also check the department notice boards and Intranet for the most up-dated time-tables.

You will note from your time-table that there are sessions for laboratory work every week and there will be notices posted on the notice board informing you the time and grouping for your laboratory sessions.

Students should note that all laboratory sessions are compulsory and absence from laboratory sessions without satisfactory reasons will be penalized and may consequently lead to failure in your coursework.
3. Undergraduate Study Programmes

3.1 COMPUTER ENGINEERING

SYLLABUS

This syllabus applies to students admitted in the academic year 2011-12 and thereafter.

Definitions and Terminology:

Each course offered by the Department of Electrical and Electronic Engineering shall be classified as either introductory level course or advanced level course, and be assigned a Level --- One, Two or Three, in which Level One courses are introductory courses whereas advanced courses include Level Two and Three courses.

All courses are grouped into the following 10 Subject Groups:

A. Electrical Energy
B. Electronics and Photonics
C. Signal Processing and Control Systems
D. Communications and Networking
E. Computer Systems
F. Complementary Studies
G. Projects
H. General Engineering
I. Mathematics
J. Software and IT Applications

A Discipline Core course is a compulsory course which a candidate must pass in the manner provided for in the Regulations. A Breadth Course is a Level 1 or Level 2 course and a Depth Course is a Level 3 course that is offered in one of the subject groups as an optional course for the curriculum.

The Curriculum

The curriculum shall comprise at least 180 credits including the following:
(a) 24 credits from General Engineering courses, including:
   (i) ENGG1002 Computer programming and applications; AND
   (ii) ENGG1003 Mathematics I or both ENGG1004 Mathematics IA and ENGG1005 Mathematics IB; AND
   (iii) ENGG1015 Introduction to electrical and electronic engineering; AND
Study Programmes - CE

(iv) ENGG1007 Foundations of computer science
(b) 60 credits of Computer Engineering (CE) Discipline Core Courses
(c) 33 credits of Breadth/Depth Courses comprising
   (i) 12 credits of course(s) selected from Groups E, J; and
   (ii) the remaining are courses selected from Groups A, B, C, D, E, H, I, J but no more than 6 credits from Group H.
(d) Complementary Studies courses comprising (Total 12 credits):
   (i) ELEC2814 Engineering management and society (6 credits)
   (ii) ELEC2815 Economics, finance and marketing for engineers (6 credits)
(e) ELEC2813 Integrated project (CE) (6 credits)
(f) ELEC3802 Technical project (12 credits)
(g) ELEC1810 Workshop training (6 credits)
(h) ELEC1811 Industrial training (6 credits)
(i) UG5 requirements (21 credits):
   (i) CAES1507 Professional and technical written communication for engineers\(^1\) (3 credits)
   (ii) CAES1515 Professional and technical oral communication for engineers (3 credits)
   (iii) CENG1001 Practical Chinese language course for engineering students\(^2\) (3 credits)
   (iv) 12 credits of courses in the Common Core Curriculum, selecting no more than one course from each Area of Inquiry

To complete the degree requirement, a candidate must pass all the courses specified in the Curriculum and satisfy any other requirements as stipulated in the University or Faculty of Engineering regulations.

Degree Classification

The best 180 credits satisfying the Curriculum described above shall be taken into account for degree classification.

Order of Study

Order of study is dictated by prerequisite and co-requisite requirements. Generally, Level 1 courses should be taken before Level 2 courses, Level 2 courses should be taken before Level 3 courses and core courses should be taken before breadth courses. Courses in Complementary Studies and UG5 Requirements can be taken in any order.

---

1. Students pursuing the double-degrees in BEng/BBA should take CAES1907 in lieu of CAES1507
2. Putonghua-speaking students should take CUND0002 or CUND0003. Students who have not studied Chinese language during their secondary education / who have not attained the requisite level of competence in the Chinese language to take CENG1001 can apply (i) to take credit-bearing Cantonese or Putonghua language courses offered by the School of Chinese especially for international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.
First Year

The first-year syllabus shall include the following courses:

General Engineering Courses (Total 24 credits)

Either

ENGG1003 Mathematics I (6 credits)

or

ENGG1004 Mathematics IA (3 credits) and ENGG1005 Mathematics IB (3 credits)

ENGG1002 Computer programming and applications (6 credits)

ENGG1007 Foundations of computer science (6 credits)

(can be replaced by CSIS1118 Foundations of computer science (6 credits))

(mutually exclusive with: ELEC1807, CSIS1118)

ENGG1015 Introduction to electrical and electronic engineering (6 credits)

Discipline Core Courses for CE (Total 24 credits)

CSIS1119 Introduction to data structures and algorithms (6 credits)

CSIS1122 Computer programming II (6 credits)

ELEC1401 Computer organization and microprocessors (6 credits)

ELEC1306 Electric and electronic circuits (6 credits)

(mutually exclusive with ENGG1008)

UGS Requirements (Total 9 credits)

CAES1507 Professional and technical written communication for engineers (3 credits)

CAES1515 Professional and technical oral communication for engineers (3 credits)

CENG1001 Practical Chinese language course for engineering students (3 credits)

Training (Total 6 credits)

ELEC1810 Workshop training (6 credits)

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3. Students pursuing the double-degrees in BEng/BBA should take CAES1907 in lieu of CAES1507

4. Putonghua-speaking students should take CUND0002 or CUND0003. Students who have not studied Chinese language during their secondary education / who have not attained the requisite level of competence in the Chinese language to take CENG1001 can apply (i) to take credit-bearing Cantonese or Putonghua language courses offered by the School of Chinese especially for international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.
Second Year

The second-year syllabus shall normally include the following courses:

Discipline Core Courses for CE (Total 36 credits)
- CSIS0230  Principles of operating systems (6 credits)
- CSIS0234  Computer and communication networks (6 credits)
- CSIS0297  Introduction to software engineering (6 credits)
- ELEC1802  Engineering mathematics II (6 credits)
- ELEC2302  Digital system design (6 credits)
- ELEC2401  Computer architecture (6 credits)

Complementary Studies (Total 6 credits)
- ELEC2814  Engineering management and society (6 credits)

UG5 Requirements (Total 12 credits)
- Two Common Core Courses (12 credits)

Project (Total 6 credits)
- ELEC2813  Integrated project (CE) (6 credits)

Training (Total 6 credits)
- ELEC1811  Industrial training (6 credits)

Third Year

The third-year syllabus shall normally include the following courses:

Breadth/Depth Courses (Total 33 credits)
- 33 credits of Breadth/Depth Courses selected according to item (c) of the curriculum.

Complementary Studies: (Total 6 credits)
- ELEC2815  Economics, finance and marketing for engineers (6 credits)

Project (Total 12 credits)
- ELEC3802  Technical project (12 credits)
SYLLABUS

This syllabus applies to students admitted in the academic year 2011-12 and thereafter.

Definitions and Terminology

All courses offered by the Department of Electrical and Electronic Engineering shall be classified as either introductory level course or advanced level course, and be assigned a Level --- One, Two or Three, in which Level One courses are introductory courses whereas advanced courses include Level Two and Three courses.

All courses are grouped into the following 10 Subject Groups:

A. Electrical Energy
B. Electronics and Photonics
C. Signal Processing and Control Systems
D. Communications and Networking
E. Computer Systems
F. Complementary Studies
G. Projects
H. General Engineering
I. Mathematics
J. Software and IT Applications

A Discipline Core course is a compulsory course which a candidate must pass in the manner provided for in the Regulations. A Breadth Course is a Level 1 or Level 2 course and a Depth Course is a Level 3 course that is offered in one of the subject groups as an optional course for the curriculum.

The Curriculum

The curriculum shall comprise at least 180 credits including the following:

(a) 24 credits from General Engineering courses comprising:
   (i) ENGG1002 Computer programming and applications; AND
   (ii) ENGG1003 Mathematics I or both ENGG1004 Mathematics IA and ENGG1005 Mathematics IB; AND
   (iii) ENGG1015 Introduction to electrical and electronic engineering; AND
   (iv) An additional 6-credit General Engineering course from Group H

(b) 54 credits of Electronic and Communications Engineering Discipline Core Courses

(c) 39 credits of Breadth/Depth Courses comprising:
   (i) 15 credits of Breadth/Depth Courses from Groups A, B, C, D, E, J; AND
(ii) 6 credits of Breadth/Depth Course from Group I; AND
(iii) 18 credits of Depth Courses from Groups B, C, D, E with at least 12 credits selected from Groups B, D

(d) 12 credits of Complementary Studies courses comprising:
   (i) ELEC2814 Engineering management and society (6 credits)
   (ii) ELEC2815 Economics, finance and marketing for engineers (6 credits)

(e) 30 credits of Project and Training comprising:
   (i) ELEC2812 Integrated project (EComE) (6 credits)
   (ii) ELEC3801 Technical project (12 credits)
   (iii) ELEC1810 Workshop training (6 credits)
   (iv) ELEC1811 Industrial training (6 credits)

(f) UG5 requirements (21 credits):
   (i) CAES1507 Professional and technical written communication for engineers\(^\text{5}\) (3 credits)
   (ii) CAES1515 Professional and technical oral communication for engineers (3 credits)
   (iii) CENG1001 Practical Chinese language course for engineering students\(^\text{6}\) (3 credits)
   (iv) 12 credits of courses in the Common Core Curriculum, selecting no more than one course from each Area of Inquiry

To complete the degree requirement, a candidate must pass all the courses specified in the Curriculum and satisfy any other requirements as stipulated in the University or Faculty of Engineering regulations.

Degree Classification
The best 180 credits satisfying the Curriculum described above shall be taken into account for degree classification.

Order of Study
Order of study is dictated by prerequisite and co-requisite requirements. Generally, Level 1 courses should be taken before Level 2 courses, Level 2 courses should be taken before Level 3 courses and core courses should be taken before breadth courses. Courses in Complementary Studies and UG5 Requirements can be taken in any order.

---

5. Students pursuing double-degrees in BEng/BBA should take CAES1907 in lieu of CAES1507
6. Putonghua-speaking students should take CUND0002 or CUND0003. Students who have not studied Chinese language during their secondary education / who have not attained the requisite level of competence in the Chinese language to take CENG1001 can apply (i) to take credit-bearing Cantonese or Putonghua language courses offered by the School of Chinese especially for international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.
First Year

The first-year syllabus shall include the following courses:

General Engineering Courses (Total 24 credits)

Either

- ENGG1003 Mathematics I (6 credits)
- ENGG1004 Mathematics IA (3 credits) and ENGG1005 Mathematics IB (3 credits)

- ENGG1002 Computer programming and applications (6 credits)
- ENGG1015 Introduction to electrical and electronic engineering (6 credits)

Additional 6 credits of General Engineering course from Group H

Discipline Core Courses for EComE (Total 24 credits)

- ELEC1202 Introduction to electromagnetic waves and fields (6 credits)
- ELEC1306 Electric and electronic circuits (6 credits) (mutually exclusive with ENGG1008)
- ELEC1401 Computer organization and microprocessors (6 credits)
- ELEC1503 Object oriented programming and data structures (6 credits)

UG5 Requirements (Total 9 credits)

- CAES1507 Professional and technical written communication for engineers (3 credits)
- CAES1515 Professional and technical oral communication for engineers (3 credits)
- CENG1001 Practical Chinese language course for engineering students (3 credits)

Training (Total 6 credits)

- ELEC1810 Workshop training (6 credits)

Second Year

The second-year syllabus shall normally include the following courses:

Discipline Core Courses for EComE (Total 30 credits)

- ELEC1802 Engineering mathematics II (6 credits)
- ELEC2201 Signals and linear systems (6 credits)
- ELEC2202 Communications engineering (6 credits)

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7. Students pursuing double-degrees in BEng/BBA should take CAES1907 in lieu of CAES1507
8. Putonghua-speaking students should take CUND0002 or CUND0003. Students who have not studied Chinese language during their secondary education / who have not attained the requisite level of competence in the Chinese language to take CENG1001 can apply (i) to take credit-bearing Cantonese or Putonghua language courses offered by the School of Chinese especially for international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.
ELEC2306  Electronic devices and circuits (6 credits)
ELEC2501  Software engineering and operating systems (6 credits)

Breadth/Depth Courses (Total 6 credits)
6 credits of Breadth/Depth Courses selected according to item (c) of the curriculum

Complementary Studies (Total 6 credits)
ELEC2814  Engineering management and society (6 credits)

UG5 Requirements (Total 12 credits)
Two Common Core Courses (12 credits)

Project (Total 6 credits)
ELEC2812  Integrated project (EComE) (6 credits)

Training (Total 6 credits)
ELEC1811  Industrial training (6 credits)

**Third Year**

The third-year syllabus shall normally include the following courses:

Breadth/Depth Courses (Total 33 credits)
33 credits of Breadth/Depth Courses selected according to item (c) of the curriculum

Complementary Studies (Total 6 credits)
ELEC2815  Economics, finance and marketing for engineers (6 credits)

Project (Total 12 credits)
ELEC3801  Technical project (12 credits)
3.3 ELECTRICAL ENGINEERING

SYLLABUS

This syllabus applies to students admitted in the academic year 2011-12 and thereafter.

Definitions and Terminology:

Each course offered by the Department of Electrical and Electronic Engineering shall be classified as either introductory level course or advanced level course, and be assigned a Level --- One, Two or Three, in which Level One courses are introductory courses whereas advanced courses include Level Two and Three courses.

All courses are grouped into the following 10 Subject Groups:

A. Electrical Energy
B. Electronics and Photonics
C. Signal Processing and Control Systems
D. Communications and Networking
E. Computer Systems
F. Complementary Studies
G. Projects
H. General Engineering
I. Mathematics
J. Software and IT Applications

A Discipline Core course is a compulsory course which a candidate must pass in the manner provided for in the Regulations. A Breadth Course is a Level 1 or Level 2 course and a Depth Course is a Level 3 course that is offered in one of the subject groups as an optional course for the curriculum.

The Curriculum

The curriculum shall comprise at least 180 credits including the following:

(a) 24 credits from General Engineering courses, including:
   (i) ENGG1002 Computer programming and applications; AND
   (ii) ENGG1003 Mathematics I or both ENGG1004 Mathematics IA and ENGG1005 Mathematics IB; AND
   (iii) ENGG1015 Introduction to electrical and electronic engineering; AND
   (iv) An additional 6-credit General Engineering Course from Group H

(b) 48 credits of Electrical Engineering (EE) Discipline Core Courses

(c) 45 credits of Breadth/Depth Courses comprising:
   (i) 21 credits of Breadth/Depth Courses from Groups A, B, C, D, E, J; AND
(ii) 6 credits of Breadth/Depth Course from Group I; AND
(iii) 18 credits of Depth Courses from Group A
(d) 12 credits of Complementary Studies Courses comprising:
   (i) ELEC2814 Engineering management and society (6 credits)
   (ii) ELEC2815 Economics, finance and marketing for engineers (6 credits)
(e) ELEC2805 Integrated project (EE) (6 credits)
(f) ELEC3801 Technical project (12 credits)
(g) ELEC1810 Workshop training (6 credits)
(h) ELEC1811 Industrial training (6 credits)
(i) UG5 requirements (21 credits):
   (i) CAES1507 Professional and technical written communication for engineers\(^9\) (3 credits)
   (ii) CAES1515 Professional and technical oral communication for engineers (3 credits)
   (iii) CENG1001 Practical Chinese language course for engineering students\(^{10}\) (3 credits)
   (iv) 12 credits of courses in the Common Core Curriculum, selecting no more than one course from each Area of Inquiry

To complete the degree requirement, a candidate must pass all the courses specified in the Curriculum and satisfy any other requirements as stipulated in the University or Faculty of Engineering regulations.

Degree Classification
The best 180 credits satisfying the Curriculum described above shall be taken into account for degree classification.

Order of Study
Order of study is dictated by prerequisite and co-requisite requirements. Generally, Level 1 courses should be taken before Level 2 courses, Level 2 courses should be taken before Level 3 courses and core courses should be taken before breadth courses. Courses in Complementary Studies and UG 5 Requirements can be taken in any order.

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9. Students pursuing double-degrees in BEng/BBA should take CAES1907 in lieu of CAES1507
10. Putonghua-speaking students should take CUND0002 or CUND0003. Students who have not studied Chinese language during their secondary education / who have not attained the requisite level of competence in the Chinese language to take CENG1001 can apply (i) to take credit-bearing Cantonese or Putonghua language courses offered by the School of Chinese especially for international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.
First Year

The first-year syllabus shall normally include the following courses:

General Engineering Courses (Total 24 credits)

Either

- ENGG1003 Mathematics I (6 credits)
- or
- ENGG1004 Mathematics IA (3 credits) and ENGG1005 Mathematics IB (3 credits)

- ENGG1002 Computer programming and applications (6 credits)
- ENGG1015 Introduction to electrical and electronic engineering (6 credits)

Additional 6 credits of General Engineering Course from Group H

Discipline Core Courses for EE (Total 24 credits)

- ELEC1107 Electrical energy technology (6 credits)
- ELEC1401 Computer organization and microprocessors (6 credits)
- ELEC1802 Engineering mathematics II (6 credits)
- ELEC1306 Electric and electronic circuits (6 credits)
  (mutually exclusive with ENGG1008)

UG5 Requirements (Total 9 credits)

- CAES1507 Professional and technical written communication for engineers (3 credits)
- CAES1515 Professional and technical oral communication for engineers (3 credits)
- CENG1001 Practical Chinese language course for engineering students (3 credits)

Training (6 credits)

- ELEC1810 Workshop training (6 credits)

Second Year

The second-year syllabus shall normally include the following courses:

Discipline Core Courses for EE (Total 24 credits)

- ELEC2101 Power transmission and distribution (6 credits)
- ELEC2102 Electric energy conversion (6 credits)
- ELEC2103 Power electronics (6 credits)
- ELEC2201 Signals and linear systems (6 credits)

Breadth/Depth Courses (Total 12 credits)

12 credits of Breadth/Depth Courses selected according to item (c) of the curriculum
Complementary Studies (Total 6 credits)
   ELEC2814 Engineering management and society (6 credits)

UG5 Requirements (Total 12 credits)
   Two Common Core Courses (12 credits)

Project (Total 6 credits)
   ELEC2805 Integrated project (EE) (6 credits)

Training (6 credits)
   ELEC1811 Industrial training (6 credits)

Third Year

The third-year syllabus shall normally include the following courses:

Breadth/Depth Courses (Total 33 credits)
   33 credits of Breadth/Depth Courses selected according to item (c) of the curriculum.

Complementary Studies (Total 6 credits)
   ELEC2815 Economics, finance and marketing for engineers (6 credits)

Project (Total 12 credits)
   ELEC3801 Technical project (12 credits)
### 3.4 INFORMATION ENGINEERING

#### SYLLABUS

This syllabus applies to students admitted in the academic year 2011-12 and thereafter.

**Definitions and Terminology:**

Each course offered by the Department of Electrical and Electronic Engineering shall be classified as either introductory level course or advanced level course, and be assigned a Level --- One, Two or Three, in which Level One courses are introductory courses whereas advanced courses includes Level Two and Three courses.

All subject-related courses are grouped into the following 10 Subject Groups:

- A. Electrical Energy
- B. Electronics and Photonics
- C. Signal Processing and Control Systems
- D. Communications and Networking
- E. Computer Systems
- F. Complementary Studies
- G. Projects
- H. General Engineering
- I. Mathematics
- J. Software and IT Applications

A Discipline Core course is a compulsory course which a candidate must pass in the manner provided for in the Regulations. A Breadth Course is a Level 1 or Level 2 course and a Depth Course is a Level 3 course that is offered in one of the subject groups as an optional course for the curriculum.

#### The Curriculum

The curriculum shall comprise at least 180 credits including the following:

(a) 24 credits from General Engineering courses, including:
   (i) ENGG1002 Computer programming and applications; AND
   (ii) ENGG1003 Mathematics I or both ENGG1004 Mathematics IA and ENGG1005 Mathematics IB; AND
   (iii) ENGG1015 Introduction to electrical and electronic engineering; AND
   (iv) An additional 6-credits of General Engineering course from Group H

(b) 54 credits of Information Engineering (InfoE) Discipline Core Courses

(c) 39 credits of Breadth/Depth Courses comprising:
   (i) 18 credits of Depth Courses from Groups A, B, C, D, E, J; AND
(ii) 21 credits of Breadth/Depth Courses from Group A, B, C, D, E, I, J but no more than 6 credits from Group I.

(d) 12 credits of Complementary Studies courses comprising:
   (i) ELEC2814 Engineering management and society (6 credits)
   (ii) ELEC2815 Economics, finance and marketing for engineers (6 credits)

(e) ELEC2807 Integrated project (InfoE) (6 credits)

(f) ELEC3801 Technical project (12 credits)

(g) ELEC1810 Workshop training (6 credits)

(h) ELEC1811 Industrial training (6 credits)

(i) UG5 requirements (21 credits):
   (i) CAES1507 Professional and technical written communication for engineers 11 (3 credits)
   (ii) CAES1515 Professional and technical oral communication for engineers (3 credits)
   (iii) CENG1001 Practical Chinese language course for engineering students 12 (3 credits)
   (iv) 12 credits of courses in the Common Core Curriculum, selecting no more than one course from each Area of Inquiry

To complete the degree requirement, a candidate must pass all the courses specified in the Curriculum and satisfy any other requirements as stipulated in the University or Faculty of Engineering regulations.

Degree Classification
The best 180 credits satisfying the Curriculum described above shall be taken into account for degree classification.

Order of Study
Order of study is dictated by prerequisite and co-requisite requirements. Generally, Level 1 courses should be taken before Level 2 courses, Level 2 courses should be taken before Level 3 courses and core courses should be taken before breadth courses. Courses in Complementary Studies and UG5 Requirements can be taken in any order.

11. Students pursuing double-degrees in BEng/BBA should take CAES1907 in lieu of CAES1507

12. Putonghua-speaking students should take CUND0002 or CUND0003. Students who have not studied Chinese language during their secondary education / who have not attained the requisite level of competence in the Chinese language to take CENG1001 can apply (i) to take credit-bearing Cantonese or Putonghua language courses offered by the School of Chinese especially for international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.
**First Year**

The first-year syllabus shall include the following courses:

**General Engineering Courses (Total 24 credits)**

Either

- ENGG1003  Mathematics I (6 credits)
- or
- ENGG1004  Mathematics IA (3 credits) and ENGG1005 Mathematics IB (3 credits)

ENGG1002  Computer programming and applications (6 credits)
ENGG1015  Introduction to electrical and electronic engineering (6 credits)

Additional 6 credits of General Engineering course from Group H

**Discipline Core Courses for InfoE (Total 24 credits)**

- ELEC1306  Electric and electronic circuits (6 credits)  
  (mutually exclusive with ENGG1008)
- ELEC1401  Computer organization and microprocessors (6 credits)
- ELEC1503  Object oriented programming and data structures (6 credits)
- ELEC1802  Engineering mathematics II (6 credits)

**UG5 Requirements (Total 9 credits)**

- CAES1507  Professional and technical written communication for engineers (3 credits)
- CAES1515  Professional and technical oral communication for engineers (3 credits)
- CENG1001  Practical Chinese language course for engineering students (3 credits)

**Training (Total 6 credits)**

- ELEC1810  Workshop training (6 credits)

**Second Year**

The second-year syllabus shall normally include the following courses:

**Discipline Core Courses for InfoE (Total 30 credits)**

- ELEC2201  Signals and linear systems (6 credits)
- ELEC2202  Communications engineering (6 credits)

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13. Students pursuing double-degrees in BEng/BBA should take CAES1907 in lieu of CAES1507
14. Putonghua-speaking students should take CUND0002 or CUND0003. Students who have not studied Chinese language during their secondary education / who have not attained the requisite level of competence in the Chinese language to take CENG1001 can apply (i) to take credit-bearing Cantonese or Putonghua language courses offered by the School of Chinese especially for international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.
ELEC2403  Computer networks (6 credits)
ELEC2501  Software engineering and operating systems (6 credits)
ELEC2817  Probability and statistics in engineering (6 credits)

Breadth/Depth Courses (Total 6 credits)
6 credits of Breadth/Depth Courses selected according to item (c) of the curriculum

UG5 Requirements (Total 12 credits)
Two Common Core Courses (12 credits)

Complementary Studies (Total 6 credits)
ELEC2814  Engineering management and society (6 credits)

Project (Total 6 credits)
ELEC2807  Integrated project (InfoE) (6 credits)

Training (Total 6 credits)
ELEC1811  Industrial training (6 credits)

Third Year

The third-year syllabus shall normally include the following courses:

Breadth/Depth Courses (Total 33 credits)
33 credits of Breadth/Depth Courses selected according to item (c) of the curriculum.

Complementary Studies (Total 6 credits)
ELEC2815  Economics, finance and marketing for engineers (6 credits)

Project (Total 12 credits)
ELEC3801  Technical project (12 credits)
### 3.5 List of Courses by Subject Groups

Note:
Courses with similar contents are flagged as “mutually exclusive”. For each set of mutually exclusive courses, students are not allowed to take more than one course. Subject to approval, some MSc courses may also be taken as Depth Courses in their respective subject groups. Each MSc course is counted as 3 credits.

#### Group A: Electrical Energy

<table>
<thead>
<tr>
<th>Level</th>
<th>Code</th>
<th>Course Title</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Co-requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ELEC1107</td>
<td>Electrical energy technology (core: EE)</td>
<td>6</td>
<td>-</td>
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<tr>
<td>2</td>
<td>ELEC2101</td>
<td>Power transmission and distribution (core: EE)</td>
<td>6</td>
<td>-</td>
<td>ELEC1104 or ELEC1107</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ELEC2102</td>
<td>Electric energy conversion (core: EE)</td>
<td>6</td>
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<td>ELEC1103 or ELEC1107</td>
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<tr>
<td>2</td>
<td>ELEC2103</td>
<td>Power electronics (core: EE)</td>
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<tr>
<td>3</td>
<td>ELEC3104</td>
<td>Electric vehicle technology</td>
<td>6</td>
<td>-</td>
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</tr>
<tr>
<td>3</td>
<td>ELEC3105</td>
<td>Building services - electrical services</td>
<td>6</td>
<td>-</td>
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<tr>
<td>3</td>
<td>ELEC3106</td>
<td>Building services - electrical installations</td>
<td>6</td>
<td>-</td>
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<tr>
<td>3</td>
<td>ELEC3107</td>
<td>Power system analysis and control</td>
<td>6</td>
<td>ELEC2101</td>
<td></td>
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<tr>
<td>3</td>
<td>ELEC3111</td>
<td>Electric railway systems</td>
<td>6</td>
<td>ELEC1103 or ELEC1107</td>
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</tr>
<tr>
<td>3</td>
<td>ELEC3112</td>
<td>Power system protection and switchgear</td>
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#### Group B: Electronics and Photonics

<table>
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<th>Level</th>
<th>Code</th>
<th>Course Title</th>
<th>Credit</th>
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<th>Co-requisite</th>
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<tbody>
<tr>
<td>1</td>
<td>ELEC1306</td>
<td>Electric and electronic circuits (core: CE, EE, EComE, InfoE) (mutually exclusive with ENGG1008)</td>
<td>6</td>
<td>ELEC1306 or ELEC1305 or ELEC1301 or ELEC1614</td>
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<tr>
<td>2</td>
<td>ELEC2301</td>
<td>Analogue electronics</td>
<td>6</td>
<td>ENGG1008 or ELEC1306 or ELEC1401</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>ELEC2302</td>
<td>Digital system design (core: CE)</td>
<td>6</td>
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<tr>
<td>2</td>
<td>ELEC2305</td>
<td>Electronic materials and devices</td>
<td>6</td>
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<tr>
<td>2</td>
<td>ELEC2306</td>
<td>Electronic devices and circuits</td>
<td>6</td>
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<td>3</td>
<td>ELEC3303</td>
<td>Design of digital integrated circuits</td>
<td>6</td>
<td>ELEC2305 or ELEC1304 or ELEC2301</td>
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<tr>
<td>Level</td>
<td>Code</td>
<td>Course Title</td>
<td>Credit</td>
<td>Prerequisite</td>
<td>Co-requisite</td>
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<tr>
<td>3</td>
<td>ELEC3223</td>
<td>Optical networking devices and technologies</td>
<td>6</td>
<td>ELEC2206 or ELEC2207</td>
<td>-</td>
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<tr>
<td>3</td>
<td>ELEC3612</td>
<td>VLSI design principles</td>
<td>6</td>
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**Group C: Signal Processing and Control Systems**

<table>
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<tr>
<th>Level</th>
<th>Code</th>
<th>Course Title</th>
<th>Credit</th>
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<th>Co-requisite</th>
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<tbody>
<tr>
<td>2</td>
<td>ELEC2201</td>
<td>Signals and linear systems (core: EComE, EE, InfoE)</td>
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<tr>
<td>2</td>
<td>ELEC2204</td>
<td>Digital signal processing</td>
<td>6</td>
<td>ELEC2201</td>
<td>-</td>
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<tr>
<td>2</td>
<td>ELEC2205</td>
<td>Control and instrumentation</td>
<td>6</td>
<td>-</td>
<td>ELEC2201</td>
</tr>
<tr>
<td>3</td>
<td>ELEC3206</td>
<td>Control systems</td>
<td>6</td>
<td>ELEC2205</td>
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<tr>
<td>3</td>
<td>ELEC3222</td>
<td>Robotics</td>
<td>6</td>
<td>ELEC2205</td>
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<tr>
<td>3</td>
<td>ELEC3224</td>
<td>Multimedia signals and applications (mutually exclusive with CSIS0315)</td>
<td>6</td>
<td>ELEC2201</td>
<td>-</td>
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<tr>
<td>3</td>
<td>ELEC3225</td>
<td>Digital image processing (mutually exclusive with ELEC3505)</td>
<td>6</td>
<td>ELEC2201</td>
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**Group D: Communications and Networking**

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<tr>
<th>Level</th>
<th>Code</th>
<th>Course Title</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Co-requisite</th>
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<tbody>
<tr>
<td>1</td>
<td>ELEC1202</td>
<td>Introduction to electromagnetic waves and fields (core: EComE)</td>
<td>6</td>
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<tr>
<td>2</td>
<td>ELEC2202</td>
<td>Communications engineering (core: EComE, InfoE)</td>
<td>6</td>
<td>-</td>
<td>ELEC2201</td>
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<tr>
<td>2</td>
<td>ELEC2207</td>
<td>Engineering electromagnetism</td>
<td>6</td>
<td>ELEC1201 or ELEC1202</td>
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<tr>
<td>2</td>
<td>ELEC2403</td>
<td>Computer networks (mutually exclusive with ELEC2402, ELEC2701, CSIS0234) (core: InfoE)</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>ELEC3201</td>
<td>Communication systems</td>
<td>6</td>
<td>ELEC2202</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>ELEC3203</td>
<td>Cellular radio and personal communication systems (mutually exclusive with CSIS0328, ELEC6071)</td>
<td>6</td>
<td>ELEC2202</td>
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<tr>
<td>3</td>
<td>ELEC3227</td>
<td>Information theory and coding (mutually exclusive with ELEC2304)</td>
<td>6</td>
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<td>3</td>
<td>ELEC3221</td>
<td>Microwave engineering</td>
<td>6</td>
<td>ELEC1201 or ELEC1202 or ELEC2206 or ELEC2207</td>
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<tr>
<td>3</td>
<td>ELEC3402</td>
<td>Advanced networking technologies (mutually exclusive with ELEC3401)</td>
<td>6</td>
<td>ELEC2402 or ELEC2701 or CSIS0234</td>
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</table>
### Group E: Computer Systems

<table>
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<tr>
<th>Level</th>
<th>Code</th>
<th>Course Title</th>
<th>Credit</th>
<th>Prerequisite</th>
<th>Co-requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ELEC1401</td>
<td>Computer organization and microprocessors (core: CE, EComE, EE, InfoE) (mutually exclusive with CSIS1120)</td>
<td>6</td>
<td>-</td>
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<tr>
<td>1</td>
<td>ELEC1503</td>
<td>Object-Oriented programming and data structures (mutually exclusive with CSIS0396) (core: EComE, InfoE)</td>
<td>6</td>
<td>ENGG1002</td>
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<tr>
<td>2</td>
<td>ELEC2401</td>
<td>Computer architecture (core: CE) (mutually exclusive with CSIS0231)</td>
<td>6</td>
<td>ELEC1401</td>
<td>-</td>
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<tr>
<td>2</td>
<td>ELEC2501</td>
<td>Software engineering and operating systems (mutually exclusive with CSIS0230 and CSIS0297)(core: EComE, InfoE)</td>
<td>6</td>
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<tr>
<td>2</td>
<td>ELEC2601</td>
<td>Human computer interaction</td>
<td>6</td>
<td>ELEC1501 or ELEC1502 or ELEC1503 or CSIS0396</td>
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<tr>
<td>2</td>
<td>ELEC2603</td>
<td>Systems and network programming (mutually exclusive with ELEC3628, CSIS0402)</td>
<td>6</td>
<td>ELEC1501 or ELEC1502 or ELEC1503 or CSIS1119 &amp; CSIS0396</td>
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<tr>
<td>3</td>
<td>ELEC3226</td>
<td>Embedded systems</td>
<td>6</td>
<td>ELEC1401 &amp; ELEC2302</td>
<td>-</td>
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<tr>
<td>3</td>
<td>ELEC3503</td>
<td>Fuzzy systems and neural networks</td>
<td>6</td>
<td>-</td>
<td>-</td>
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<tr>
<td>3</td>
<td>ELEC3629</td>
<td>Parallel computing</td>
<td>6</td>
<td>ELEC2401</td>
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<tr>
<td>3</td>
<td>ELEC3630</td>
<td>Distributed computing systems</td>
<td>6</td>
<td>(ELEC2501 or CSIS0230) &amp; (ELEC2402 or ELEC2403 or CSIS0234)</td>
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<td>3</td>
<td>ELEC3631</td>
<td>Computer network security (mutually exclusive with CSIS0327)</td>
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### Group F: Complementary Studies

<table>
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<tr>
<th>Level</th>
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<tr>
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<td>ELEC1810</td>
<td>Workshop training</td>
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<td>ELEC1811</td>
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<td>2</td>
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<td>Engineering management and society</td>
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<td>2</td>
<td>ELEC2815</td>
<td>Economics, finance and marketing for engineers</td>
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### Group G: Projects

<table>
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<td>Integrated project (EE)</td>
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### Group H: General Engineering

<table>
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<tr>
<td>1</td>
<td>ENGG1002</td>
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<td>1</td>
<td>ENGG1003</td>
<td>Mathematics I</td>
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<td>1</td>
<td>ENGG1004</td>
<td>Mathematics IA</td>
<td>3</td>
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<td>ENGG1005</td>
<td>Mathematics IB</td>
<td>3</td>
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<td></td>
<td>ENGG1006</td>
<td>Engineering for sustainable development</td>
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<td>ENGG1007</td>
<td>Foundations of computer science</td>
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<td></td>
<td>ENGG1009</td>
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<td>ENGG1010</td>
<td>Foundations of engineering mechanics</td>
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<td>ENGG1011</td>
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<td>ENGG1015</td>
<td>Introduction to electrical and electronic</td>
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<td>ENGG10xx</td>
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### Group I: Mathematics

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<td>(core: CE, EComE, EE, InfoE)</td>
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<td>Numerical methods and optimization</td>
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<td>2</td>
<td>ELEC2817</td>
<td>Probability and statistics in engineering</td>
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<td></td>
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<td>(core: InfoE)</td>
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<td>3</td>
<td>ELEC3705</td>
<td>Queuing theory</td>
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### Study Programmes

#### Group J: Software and IT Applications

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<tr>
<th>Level</th>
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<th>Co-requisite</th>
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<tbody>
<tr>
<td>1</td>
<td>CSIS1119</td>
<td>Introduction to data structures and algorithms (core: CE)</td>
<td>6</td>
<td>CSIS1117 or ELEC1501 or ENGG1002</td>
<td>CSIS1122 (Computer Programming II) (Pre- or Co-requisites)</td>
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<td>1</td>
<td>CSIS1122</td>
<td>Computer programming II (core: CE)</td>
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<td>CSIS1117 or ELEC1501 or ENGG1002</td>
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<td>2</td>
<td>CSIS0230</td>
<td>Principles of operating systems (mutually exclusive with ELEC2501) (core: CE)</td>
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<td>CSIS1122 &amp; (CSIS1120 or ELEC1401)</td>
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<tr>
<td>2</td>
<td>CSIS0234</td>
<td>Computer and communication networks (mutually exclusive with ELEC2402, ELEC2403) (core: CE)</td>
<td>6</td>
<td>CSIS1120 or ELEC1401</td>
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<td>2</td>
<td>CSIS0259</td>
<td>Principles of programming languages</td>
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<td>CSIS1119 &amp; (CSIS1120 or ELEC1401)</td>
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<tr>
<td>2</td>
<td>CSIS0278</td>
<td>Introduction to database management systems</td>
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<td>CSIS1119 or ELEC1501 or ELEC1502 or ELEC1503</td>
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<tr>
<td>2</td>
<td>CSIS0297</td>
<td>Introduction to software engineering (core: CE)</td>
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<td>CSIS1117 or ELEC1501 or ENGG1002</td>
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<td>2</td>
<td>CSIS0311</td>
<td>Legal aspects of computing</td>
<td>6</td>
<td>CSIS1119 or ELEC1501 or ELEC1502 or ELEC1503</td>
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<tr>
<td>2</td>
<td>CSIS0396</td>
<td>Object-oriented programming and Java (mutually exclusive with ELEC1502, ELEC1503)</td>
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<td>CSIS1122 &amp; (CSIS1120 or ELEC1401)</td>
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<td>3</td>
<td>CSIS0218</td>
<td>Discrete event simulation</td>
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<td>3</td>
<td>CSIS0235</td>
<td>Compiling techniques</td>
<td>6</td>
<td>CSIS1119 or ELEC1501 or ELEC1502 or ELEC1503 (Pre- or Co-requisites)</td>
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<tr>
<td>3</td>
<td>CSIS0250</td>
<td>Design and analysis of algorithms</td>
<td>6</td>
<td>CSIS1119 or ELEC1501 or ELEC1502 or ELEC1503</td>
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<td>3</td>
<td>CSIS0270</td>
<td>Artificial intelligence</td>
<td>6</td>
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<td>3</td>
<td>CSIS0271</td>
<td>Computer graphics</td>
<td>6</td>
<td>CSIS1119 or CSIS1122</td>
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<tr>
<td>3</td>
<td>CSIS0314</td>
<td>Pattern classification and machine learning</td>
<td>6</td>
<td>CSIS1119 or ELEC1501 or ELEC1502 or ELEC1503</td>
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<tr>
<td>3</td>
<td>CSIS0315</td>
<td>Multimedia computing and applications (mutually exclusive with ELEC3224)</td>
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<td>CSIS1119</td>
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<td>Course Code</td>
<td>Course Title</td>
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<td>Prerequisites</td>
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<td>CSIS0317</td>
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<td>CSIS0320</td>
<td>Electronic commerce technology</td>
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<tr>
<td>CSIS0322</td>
<td>Internet and the World Wide Web (mutually exclusive with CSIS0325)</td>
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<td>CSIS1117 or ELEC1501 or ENGG1002</td>
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<tr>
<td>CSIS0323</td>
<td>Advanced database systems</td>
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<tr>
<td>CSIS0325</td>
<td>Topics in Web technologies (mutually exclusive with CSIS0322)</td>
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<tr>
<td>CSIS0326</td>
<td>Computational molecular biology</td>
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<td>CSIS0250; or BIOC2808</td>
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<tr>
<td>CSIS0327</td>
<td>Computer and network security (mutually exclusive with ELEC3631, ELEC3626)</td>
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<tr>
<td>CSIS0328</td>
<td>Wireless and mobile computing (mutually exclusive with ELEC3203, ELEC6071)</td>
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<td>CSIS0234 &amp; CSIS0396</td>
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<tr>
<td>CSIS0329</td>
<td>Computer game design and programming</td>
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<td>CSIS0351</td>
<td>Advanced algorithm analysis</td>
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<td>CSIS0250</td>
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<td>CSIS0402</td>
<td>System architecture and distributed computing (mutually exclusive with ELEC2603)</td>
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<td>CSIS0396</td>
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<tr>
<td>CSIS0403</td>
<td>Implementation, testing and maintenance of software systems</td>
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<td>CSIS0396 (Pre- or Co-requisite) (CSIS1117 or ELEC1501 or ENGG1002) and (CSIS1118 or CSIS1121 or ENGG1007)</td>
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</table>
3.6 Minor in Electrical and Electronic Engineering

Candidates who are interested in pursuing minor in Electrical and Electronic Engineering must satisfy the following prerequisites:

• Passed in HKALE Pure Mathematics and
• Passed in HKAL/AS Physics/Engineering Science

Candidates are required to complete a total of 36 credits of courses in the following manner:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tr>
<td>(i)</td>
<td><strong>12 credits of core courses</strong></td>
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<tr>
<td>ELEC1306</td>
<td>Electric and Electronic circuits</td>
<td>6</td>
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<tr>
<td>ENGG1015</td>
<td>Introduction to electrical and electronic engineering*</td>
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<tr>
<td>(ii)</td>
<td><strong>24 credits of discipline elective courses selected from the following:</strong></td>
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<tr>
<td>ELEC1107</td>
<td>Electrical energy technology</td>
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<tr>
<td>ELEC1202</td>
<td>Introduction to electromagnetic waves and fields</td>
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</tr>
<tr>
<td>ELEC1401</td>
<td>Computer organization and microprocessors</td>
<td>6</td>
</tr>
<tr>
<td>ELEC1503</td>
<td>Object-oriented programming and data structures</td>
<td>6</td>
</tr>
<tr>
<td>ELEC2101</td>
<td>Power transmission and distribution</td>
<td>6</td>
</tr>
<tr>
<td>ELEC2102</td>
<td>Electric energy conversion</td>
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</tr>
<tr>
<td>ELEC2103</td>
<td>Power electronics</td>
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</tr>
<tr>
<td>ELEC2201</td>
<td>Signals and linear systems</td>
<td>6</td>
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<tr>
<td>ELEC2202</td>
<td>Communications engineering</td>
<td>6</td>
</tr>
<tr>
<td>ELEC2204</td>
<td>Digital signal processing</td>
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<tr>
<td>ELEC2205</td>
<td>Control and instrumentation</td>
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<td>ELEC2207</td>
<td>Engineering electromagnetism</td>
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<td>ELEC2301</td>
<td>Analog electronics</td>
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<tr>
<td>ELEC2302</td>
<td>Digital system design</td>
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<tr>
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<td>Electronic materials and devices</td>
<td>6</td>
</tr>
<tr>
<td>ELEC2306</td>
<td>Electronic devices and circuits</td>
<td>6</td>
</tr>
<tr>
<td>ELEC2401</td>
<td>Computer architecture</td>
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<td>ELEC2403</td>
<td>Computer networks</td>
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<tr>
<td>ELEC2501</td>
<td>Software engineering &amp; operating systems</td>
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<tr>
<td>ELEC2601</td>
<td>Human computer interaction</td>
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<td>ELEC2603</td>
<td>Systems and network programming</td>
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<tr>
<td>ELEC3303</td>
<td>Design of digital integrated circuits</td>
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* ENGG1015 cannot be used for satisfying the requirement of both this Minor programme and another degree programme. If ENGG1015 has already been taken for another degree programme, the student should take 6 credits of discipline elective course in list (ii) as a replacement.
### 3.7 Double-Degrees in BEng/BBA

Students pursuing studies for the double-degrees in BEng/BBA curriculum are required to satisfy all the requirement of the above BEng curriculum and pass 54 credits of courses as listed below:

<table>
<thead>
<tr>
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<th>Course</th>
<th>Credits</th>
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<td>BUSI1002</td>
<td>Introduction to accounting</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1003</td>
<td>Introduction to management information system</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1004</td>
<td>Marketing</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1007</td>
<td>Principles of management</td>
<td>6</td>
</tr>
<tr>
<td>ECON1001</td>
<td>Introduction to economics I</td>
<td>6</td>
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<tr>
<td>FINA1003</td>
<td>Corporate finance</td>
<td>6</td>
</tr>
<tr>
<td>BUSI0027</td>
<td>Management accounting I</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Business Electives</td>
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</tr>
<tr>
<td></td>
<td>(Any 2 courses in Finance, HRM or Marketing major)</td>
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</tr>
</tbody>
</table>

**Total 54**

Furthermore, such students are deemed to have satisfied 6 credits of Complementary Studies (ELEC2815 Economics, finance and marketing for engineers), 6 credits of Workshop Training (ELEC1810), 12 credits of Breadth Courses after they have successfully completed 24 credits of courses from the following list. The students are also deemed to have satisfied “CAES1507 Professional and technical written communication for engineers” after they have successfully completed the course “CAES1907 Business communication”.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI1002</td>
<td>Introduction to accounting</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1003</td>
<td>Introduction to management information systems</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1004</td>
<td>Marketing</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1007</td>
<td>Principles of management</td>
<td>6</td>
</tr>
<tr>
<td>ECON1001</td>
<td>Introduction to economics I</td>
<td>6</td>
</tr>
<tr>
<td>FINA1003</td>
<td>Corporate finance</td>
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</tr>
<tr>
<td>BUSI0027</td>
<td>Management accounting I</td>
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</table>
3.8 Minor in Business/Economics/Finance

Students pursuing studies for Minor in Business/Economics/Finance are required to satisfy all the requirement of the above BEng curriculum and pass 36 credits of courses as prescribed by the Faculty of Business and Economics (information also available from http://engg.hku.hk/).

Furthermore, such students are deemed to have satisfied 6 credits of Complementary Studies (ELEC2815 Economics, finance and marketing for engineers) and 6 credits of Workshop Training (ELEC1810) after they have successfully completed 12 credits of courses from the following list.

<table>
<thead>
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<th>Course</th>
<th>Credits</th>
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<td>BUSI1002</td>
<td>Introduction to accounting</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1004</td>
<td>Marketing</td>
<td>6</td>
</tr>
<tr>
<td>BUSI1007</td>
<td>Principles of management</td>
<td>6</td>
</tr>
<tr>
<td>ECON1001</td>
<td>Introduction to economics I</td>
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<td>ECON1002</td>
<td>Introduction to economics II</td>
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<td>ECON2101</td>
<td>Microeconomic theory</td>
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<td>ECON2113</td>
<td>Microeconomic analysis</td>
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<td>FINA1003</td>
<td>Corporate finance</td>
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<td>FINA2802</td>
<td>Investments and portfolio analysis</td>
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4. Laboratory and Tutorial Classes

4.1 Laboratory Guidelines

Laboratory work forms an important and integral part of our B.Eng degree courses. During these scheduled sessions, you will be asked to conduct experiments and investigation closely related to the courses of that year. Instruction sheets will be given in advance and demonstrators (postgraduate students) will be present during the sessions to advise and assist students who may have difficulties. Member(s) of staff may also be present to supervise the laboratory and answer questions.

You are expected to observe the rules and regulations while staying in the laboratory, especially the safety aspects of handling electrical equipment. Demonstrators and members of staff are responsible to reinforce these rules and regulations. Any students appear to act in conflict with these rules and regulations may not be allowed to use the laboratory.

4.2 Log Books & Reports

A student's laboratory work is assessed by the log book(s) he/she keeps and the full laboratory reports submitted at a published set of dates. Therefore, it is vital for you to keep a complete record of the experiments performed in your log book(s), as well as giving a detail account of the experiment in a report. Report copying, once discovered, could result in serious penalty.

Students who fail their laboratory assessment of a particular course will fail that course automatically, irrespective of how they performed in the written examination.

4.3 Tutorial Classes

Tutorial classes are also organized throughout the year at appropriate times for you to raise questions related to their courses. Tutorial problem sheets may be handed out by the course teachers, and you may be asked to hand in written solutions as part of their course assessment. Although scheduled in the time-table, the exact dates for these classes will be announced by individual teachers.
5. Workshop/Industrial Training and Integrated Study-Work Programmes

5.1 Workshop Training Programme

The Department offers a compulsory Workshop Training Programme during the summer vacation to all our undergraduate students of all four disciplines who have completed their first year. This programme is designed to satisfy the membership requirements of the Hong Kong Institution of Engineers and Engineering Council (United Kingdom). It aims to expose our students to up-to-date and sophisticated equipments and technologies used in industry currently, and to provide hands-on skills and experience in the processes of design, implementation and testing of electrical, electronic and computer engineering systems.

5.2 Industrial Training Programme

There is a compulsory Industrial Training Programme during the summer vacation for all our undergraduate students who have completed their second year of study. This 6-week (minimal) placement with industrial companies or research institutes is designed for our students to learn how the engineering and technology industries operate. Emphasis is placed on the problem solving and research of engineering projects. Students will also be exposed to other related technical and/or managerial activities. Students are allowed to conduct the industrial training in Mainland or overseas for gaining more international exposure.

5.3 Integrated Study-Work Programme

In addition to the above two programmes, students may elect to join an optional Integrated Study-Work Programme at the end of their second year. The essence of this programme is to enable students to enter employment in a relevant discipline for a year before they begin their final year course. This study work concept enables the student to develop a more mature and practical outlook towards his job and profession with benefit to both the students and to the industry. Normally, the programme must be approved by the Head of Department in advance. Students who join this programme will be assigned to a supervisor at the company and an academic supervisor from the department. Their role is to provide advice and support during that year. If you are interested in the above programme, you should either talk to your non-academic tutor, course director or the Industrial Training Manager.
6. Communication/Information Channels

6.1 Non-Academic Tutors/Class Tutors

Each new student will be assigned to an academic staff acting as his/her “non-academic” tutor when he/she first arrives. The attachment spans through the 3 years degree course and it is hoped that students will meet their tutors regularly. The role of a non-academic tutor is to provide guidance to students in the non-academic areas of their university lives. The frequency of meetings is flexible and can be arranged between the student and his/her tutor.

Apart from the non-academic tutors, there are also class tutors for students of each curriculum and of each year. His/her role is to offer advice on students’ studies and other academic matters.

The class tutors’ names are printed under the “Useful Numbers” section of this handbook.

6.2 Staff-Student Consultative Committee

The role of the Staff-Student Consultative Committee (SSCC) is to enable class representatives and class tutors to meet face to face to discuss matters raised by students or teachers. In the past, the SSCC met on an average of two times a year to discuss matters such as problems and difficulties encountered in lectures, laboratory classes, teaching assistants, reporting scheme, computer utilization, departmental accommodation, and many other similar issues. The atmosphere during the SSCC is often informal, positive and problem solving.

The meeting is usually organized by the Administrative Assistant of the department, and the Chairman is Dr. N.H.C. Yung.

6.3 E-mail, Intranet, Notice Board & Others

Throughout the academic year, there are a lot of messages and information which the department or individual teachers would like to channel to you through email, departmental intranet and notices. It is therefore your responsibility to read email, departmental intranet and notices on the Department Notice board.

You should also elect among yourselves one or two Class Representative(s) who are responsible, when necessary, for channeling departmental notices, distributing notes and handouts, collecting opinion and feedback from students and attending to other student matters. They will also be invited to attend the Staff-Student Consultative Committee Meetings of the department.

6.4 Reference Books

Individual teachers may recommend references and/or textbooks at the beginning of the semester for their courses. You are encouraged to use the University Main Library facilities when you need to search for references.
7. Professional Institutions

7.1 Hong Kong Institution of Engineers (HKIE)

The Hong Kong Institution of Engineers is the professional engineering learned society and qualifying body for Hong Kong and as such has a responsibility of setting and maintaining the professional and technical standards of its members. To this end, it evaluates the qualifications for admission to grades of Institution membership.

The Corporate Membership status (M.H.K.I.E./F.H.K.I.E.) of the HKIE is recognized by the Hong Kong Government. Since our B.Eng. programmes are accredited by the HKIE, our graduates are recognized by the HKIE as having satisfied the academic part of the Corporate Membership (M.H.K.I.E./F.H.K.I.E.) qualification. The qualification matters are the responsibility of the Qualification and Membership Board of the Institution. All the engineering disciplines including the Electrical Discipline and the Electronic Discipline are represented by their respective Discipline Representatives as members of this Board. The learned society functions are organized by the elected committees of various Divisions which HKIE members are entitled to join according to their own interests. Our students may find the following Divisions, among others, to be of interest: (a) Electrical, (b) Electronics, (c) Control, Automation & Instrumentation, (d) Biomedical, (e) Environment, (f) Information Technology, and (g) Building Services. The HKIE monthly journal, the Asia Engineer, is circulated free to all its members. The HKIE offers one year free membership for the Freshman.

The HKIE takes very seriously its responsibilities with regard to the Washington Accord and to fostering, maintaining and developing bilateral and international agreements for the mutual recognition of qualifications. This is undertaken through links with a number of international engineering initiatives which have been established to harmonise qualifications and to recognize accreditation methods and standards; the Washington Accord, Federation of Engineering Institutions of South East Asia and Pacific (FEISEAP) and European Federation of National Engineering Associations (FEANI) are examples.

7.2 Institution of Engineering and Technology (IET)

The Institution of Engineering and Technology was formed by the coming together of the Institution of Electrical Engineers (IEE) and the Institution of Incorporated Engineers (IIE) and now has more than 150,000 members worldwide. It is the largest professional engineering society in Europe and the second largest of its type in the world. It aims to serve a global community engaged in engineering and technology, providing a knowledge network accessible whenever or wherever you choose.

7.3 The Institute of Electrical and Electronics Engineers (IEEE)

The Institute of Electrical and Electronics Engineers is the world’s leading professional association for the advancement of technology. Through its global membership, the IEEE is a leading authority on areas ranging from aerospace systems, computers and telecommunications to biomedical engineering, electric power and consumer electronics among others. Members rely on the IEEE as a source of technical and professional information, resources and services. To foster an interest in the engineering profession, the IEEE also serves student members in colleges and universities around the world. Other important
constituencies include prospective members and organizations that purchase IEEE products and participate in conferences or other IEEE programs. IEEE members are engineers, scientists and allied professionals whose technical interests are rooted in electrical and computer sciences, engineering and related disciplines. The highest grade of membership – IEEE fellow – is attained through nomination by peers and approval by the IEEE Board of Directors for distinction in the profession.

The Hong Kong Section of IEEE was formed in 1972 and is one of the oldest sections in the region. The section, with its student branches, organizes seminars, short courses, visits, conferences and other technical activities to promote the advancement of electrical, electronics and computer engineering. Student members enjoy much reduced subscription rate, various supports in the form of publications, library etc. and opportunity to be trained as student leaders.