

SYLLABUSES FOR THE DEGREE OF BACHELOR OF ENGINEERING (BEng)

Engineering Core courses (applicable to candidates admitted to the four-year curriculum in the academic year 2019-20 and thereafter)

Candidates are required to satisfactorily complete 7 Engineering Core courses as specified in the syllabus of the programmes concerned, including the following 6 courses:

ENGG1300	Fundamental mechanics (6 credits)
ENGG1310	Electricity and electronics (6 credits)
ENGG1320	Engineers in the modern world (6 credits)
ENGG1330	Computer programming I (6 credits)
MATH1851	Calculus and ordinary differential equations (6 credits)
MATH1853	Linear algebra, probability and statistics (6 credits)

Candidates are also required to choose 1 course from the following as specified in the syllabus of the programmes concerned:

ENGG1340	Computer programming II (6 credits)
ENGG1350	Thermofluid mechanics (6 credits)

For candidates without taking Extended Module 1 or 2 in the Hong Kong Diploma of Secondary Education examinations, or equivalent, they have to take “MATH1011 University mathematics I” (6 credits) in the first semester of their first year of studies.

The course descriptions of the Engineering core courses are as follows:

ENGG1300. Fundamental mechanics (6 credits)

This is an introductory course for first-year engineering students to lay a solid foundation in the basics of statics and dynamics. The primary objective of this course is to introduce students the fundamental concepts and principles of statics and dynamics and their applications to solve practical problems. This course comprises two major parts - Statics and Dynamics. Statics is the study of objects in a state of force equilibrium and dynamics is the study of objects in motion. The study of statics and dynamics provides the basis and foundation for further study in all engineering disciplines, particularly in Civil and Mechanical Engineering.

Assessment: 10% practical work, 40% continuous assessment, 50% examination

ENGG1310. Electricity and electronics (6 credits)

In this course, the key areas in electrical and electronic engineering, such as electrical conduction, power generation and transmission, circuit elements and calculation, electromagnetic theories and applications, energy conversion technologies and renewables, optical science and fiber, signal processing applications, wireless communication technologies, and sensors and control instrumentations, will be covered at an introductory level. A system-level overview of how these engineering components have been adoptively integrated to form different existing and emerging technologies (such as mobile phones, electric vehicles, and smart grids etc.) that are playing or may play a big impact on our modern society will be discussed. Outlooks of the possible trends of electrical and electronic engineering development will be embedded in the lecture discussions.

Assessment: 40% continuous assessment, 60% examination

ENGG1320. Engineers in the modern world (6 credits)

This course introduces fundamental concepts of engineering business; business models and financing; SWOT and market analysis; engineering entrepreneurship and innovation; system design, integration, and operation; product design and realization; and engineering sustainability. The course also involves hands-on projects in which students work in group to experience methods and techniques for the development of engineering business ideas and plans, products, or services.

Assessment: 100% continuous assessment

ENGG1330. Computer programming I (6 credits)

This is an introductory course designed for first-year engineering students to learn about computer programming. Students will acquire basic Python programming skills, including syntax, identifiers, control statements, functions, recursions, strings, lists, dictionaries, tuples and files. Searching and sorting algorithms, such as sequential search, binary search, bubble sort, insertion sort and selection sort, will also be covered.

Assessment: 70% continuous assessment, 30% examination

ENGG1340. Computer programming II (6 credits)

This course covers intermediate to advanced computer programming topics on various technologies and tools that are useful for software development. Topics include advanced Python programming, Linux shell commands, shell scripts, separate compilation techniques and C programming. This is a self-learning course; there will be no lecture and students will be provided with self-study materials. Students are required to complete milestone-based self-assessment tasks during the course. This course is designed for students who are interested in Computer Science /Computer Engineering.

Pre-requisite: ENGG1330 Computer programming I

Assessment: 70% continuous assessment, 30% examination

ENGG1350. Thermofluid mechanics (6 credits)

This is an introductory course designed for first-year engineering students to learn about the fundamentals of thermal sciences and fluid mechanics through real life examples, such as refrigerator, heat pump, underwater glider, water supply, flooding, climate change, air quality, and so on.

Assessment: 10% practical work, 30% continuous assessment, 60% examination

MATH1011. University mathematics I (6 credits)

This course aims at students with only HKDSE Mathematics (or equivalent) background and provides them with basic knowledge of mathematics that serves as essential foundation in various disciplines. It is expected to be followed by MATH1013 University mathematics II.

Pre-requisite: The course has no pre-requisite, but students are expected to have achieved Level 2 or above in HKDSE Mathematics or equivalent before enrolling the course; and not for students with Level 2 or above in Module 1 or Module 2 of HKDSE Mathematics or equivalent.

Assessment: 50% continuous assessment, 50% examination

MATH1851. Calculus and ordinary differential equations (6 credits)

In this course, students will be introduced to fundamental concepts of calculus and ordinary differential equations with a view on applications in different engineering fields. A concrete foundation of mathematics that underpins the various engineering subjects will be built. Mathematical concepts and principles, as well as some typical engineering applications, would be emphasized so that students could enhance their mathematical skills in solving engineering problems, and be well prepared in learning a higher level of applied mathematics required in different engineering disciplines.

This course is exclusively for Engineering students.

Pre-requisite: Level 2 or above in Module 1, or Module 2 of the HKDSE Mathematics or equivalent, or Pass in “MATH1011 University mathematics I”

Assessment: 30% continuous assessment, 70% examination

MATH1853. Linear algebra, probability and statistics (6 credits)

As the complementary course of MATH1851, students will be introduced to more topics of mathematics commonly applied in engineering so that students could be further enhanced with a concrete skill in mathematics underpinned for different engineering subjects. The course emphasizes mathematical concepts, principles, analysis, and their relationship to the modelling of engineering systems. Students could be furnished with the essential mathematical skill to analytically tackle some typical engineering problems to prepare for all the engineering subjects.

This course is exclusively for Engineering students.

Pre-requisite: Level 2 or above in Module 1, or Module 2 of the HKDSE Mathematics or equivalent, or Pass in “MATH1011 University mathematics I”

Assessment: 20% continuous assessment, 80% examination

University Language Enhancement Courses

All the students admitted to the Bachelor of Engineering curriculum under common code admission are required to take two English language enhancement courses and one Chinese language enhancement course in the study year as specified in the syllabuses of respective BEng curriculum:

CAES1000	Core University English¹
CAES95##	English in the Discipline course for respective BEng curriculum
CENG9001	Practical Chinese for engineering students²

¹ Candidates who have achieved Level 5 or above in English Language in the Hong Kong Diploma of Secondary Education Examination, or equivalent, are exempted from this requirement, and Core University English is optional. Those who do not take this course should take an elective course in lieu, see Regulation UG 6.

² Students are required to successfully complete the 6-credit Faculty-specific Chinese language enhancement course, except for:

- (a) Putonghua-speaking students who should take CUND9002 (Practical Chinese and Hong Kong Society) or CUND9003 (Cantonese for Non-Cantonese Speaking Students); and
- (b) students who have not studied Chinese language during their secondary education or who have not attained the requisite level of competence in the Chinese language to take the Chinese language enhancement course should seek approval from the Board of the Faculty of Engineering for exemption from the Chinese language requirement, and
 - (i) take a 6-credit Cantonese or Putonghua language course offered by the School of Chinese especially for international and exchange students; OR

COURSE DESCRIPTIONS

CAES1000. Core University English (6 credits)

The Core University English (CUE) course aims to enhance first-year students' academic English language proficiency in the university context. CUE focuses on developing students' academic English language skills for the Common Core Curriculum. These include the language skills needed to understand and produce spoken and written academic texts, express academic ideas and concepts clearly and in a well-structured manner and search for and use academic sources of information in their writing and speaking. Four online-learning modules through the Moodle platform on academic speaking, academic grammar, academic vocabulary, citation and referencing skills and avoiding plagiarism will be offered to students to support their English learning. This course will help students to participate more effectively in their first-year university studies in English, thereby enriching their first-year experience.

Assessment: 100% continuous assessment

CENG9001. Practical Chinese for engineering students (6 credits) (normally to be taken at the first semester of third year of study)

The course is designed to enable students to gain a mastery of the varieties of the Chinese language as used in the field of Engineering. It introduces students to various techniques for the effective use of practical Chinese. The course will familiarize students with traditional Chinese characters, simplified Chinese characters, modern Chinese grammar and rhetoric through outcomes-based assignments. Special training that is intended to sharpen students' presentation skills in Cantonese and Putonghua will also be provided.

Assessment: 50% continuous assessment, 50% examination.

CAES95## English in the Discipline course for respective BEng curriculum (6 credits) [to be taken in the study year as specified in the syllabuses of respective BEng curriculum]

Apart from "CAES1000 Core University English", BEng students must complete a 6-credit English in the Discipline (ED) course as specified in the syllabuses of respective BEng curriculum, with the summary of the list of ED courses as follows:

Course Code	Course Title	BEng Curriculum	Year/Semester (normally to be taken)
CAES9532	Technical English for Industrial and Manufacturing Systems Engineering	BEng(IELM) & BEng(EngSc) Systems Analytics	Semester 2, Year 3
CAES9544	Technical English for Mechanical Engineering	BEng(ME) & BEng(EngSc) Materials Engineering	Semester 2, Year 4/[BEng(ME)] & Year 3/Year 4 [BEng(EngSc) Materials Engineering]
CAES9531	Technical English for Biomedical Engineering	BEng(BME) & BEng(EngSc)	Semester 1, Year 3

(ii) take an elective course in lieu.

		Biomedical Engineering	
CAES9540	Technical English for Civil Engineering	BEng(CivE) & BEng(EngSc) Environmental Engineering	Semester 1, Year 4/[BEng(CivE)] & Year 3/Year 4 [BEng(EngSc) Environmental Engineering]
CAES9541	Technical English for Electrical and Electronic Engineering	BEng(CE) BEng(ElecE) BEng(EE) & BEng(EngSc) Energy Engineering	Semester 2, Year 4/[BEng(CE), BEng(EE), BEng(ElecE)] Year 3/Year 4 [BEng(EngSc) Energy Engineering]
CAES9542	Technical English for Computer Science	BEng(CompSc) & BAsc(FinTech)	Semester 1, Year 4

Minor Option

Candidates are given an option to pursue a minor in a discipline outside their own degree curriculum. Candidates who wish to have their minor recorded on the transcript must take and pass all the required courses in the selected minor as specified by the offering Department/Faculty in addition to the graduation requirements of their own degree curriculum. For the descriptions of the course under minor options, candidates should refer to the syllabuses of the relevant degree.

Courses taken to fulfil the Minor Option requirements may also be considered as equivalent courses that satisfy the elective requirements of the BEng curriculum, subject to the approval of the Board of the Faculty of Engineering.

Double Degree in BEng/BBA Option

Candidates are given an option to pursue the double degree in BEng/BBA, subject to the approval of the Boards of the Faculty of Engineering and Faculty of Business and Economics upon their meeting the prescribed admission requirements as laid down by both the Faculty of Engineering and the Faculty of Business and Economics.

Courses taken to fulfil the double degree curriculum requirements may also be considered as equivalent courses that satisfy the elective requirements of the BEng curriculum, subject to the approval of the Board of the Faculty of Engineering.

Candidates who have satisfied all the requirements of the BEng curriculum will be awarded the degree of Bachelor of Engineering. To be eligible for proceeding to the BBA programme in the 5th year, candidates must:

- (1) fulfil the requirements of the BEng curriculum;
- (2) hold a degree of BEng with Second Class Honours from The University of Hong Kong; and
- (3) pass the 54 credits of courses, as listed below, as required by the Faculty of Business and Economics during their study for BEng:

Course Code	Course	Credits
ACCT1101	Introduction to financial accounting	6
IIMT2601	Management information systems	6
MKTG2501	Introduction to marketing	6

MGMT2401	Principles of management	6
ECON1210	Introductory microeconomics	6
FINA1310	Corporate finance	6
ACCT2105	Introduction to management accounting	6
	Disciplinary electives (Any 2 courses in HRM, Marketing or Wealth Management major as specified below)	12
	Total	54

Disciplinary electives for BEng/BBA (Human Resource Management, HRM)

Course Code	Course	Credits
MGMT3403	Leadership	6
MGMT3404	Cross-cultural management	6
MGMT3405	Organizational behaviour	6
MGMT3415	Principles of entrepreneurship	6
MGMT3429	Strategic human resources management	6
MGMT3434	Human resource: theory and practice	6
MGMT3475	Current topics in human resource management	6
MGMT3476	Managing organizational change	6

Disciplinary electives for BEng/BBA (Marketing)

Course Code	Course	Credits
MKTG3501	Consumer behaviour	6
MKTG3502	Marketing research	6
MKTG3525	Services marketing	6
MKTG3531	Strategic marketing management	6

Disciplinary electives for BEng/BBA (Wealth Management)

Course Code	Course	Credits
ACCT3107	Hong Kong taxation	6
FINA2312	Advanced corporate finance	6
FINA2320	Investment and portfolio analysis	6
FINA2330	Financial markets and institutions	6
FINA2322	Derivatives	6
FINA2342	Insurance: theory and practice	6
FINA3325	Alternative investments	6
FINA3334	Private banking and wealth management	6
FINA3381	Behavioral finance	6

To obtain the degree of BBA, candidates must satisfactorily complete 240 credits of courses, 180 of which shall be completed during the study for BEng and bring forward to the degree of BBA by advanced standing, and 60 of which shall be completed during the 5th year in accordance with the Regulations and Syllabuses for the Degree of BBA in Conjunction with the Degree of BEng. The required courses in the first four years of BEng degree and the fifth year BBA degree are not interchangeable. Change of order of study of the course is not allowed. Students can neither defer any required courses to the second degree BBA (year 5) nor advance any required courses to the first degree BEng (year 1 - 4).

The degree of Bachelor of Business Administration shall be awarded in five divisions in accordance with item 15 of the Regulations for the Degree of Bachelor of Business Administration Awarded in Conjunction with the Degree of Bachelor of Engineering and UG9 of the Regulations for the First Degree Curricula. The determination of degree classification shall be based on the best 240

credits of courses as listed below:

	Year 1 to 4	Year 5
UG5 Requirements (42 credits)	<ul style="list-style-type: none"> • CAES1000 Core University English • CAES95## English in the Discipline course for respective BEng curriculum • CENG9001 Practical Chinese for Engineering students • HKU Common Core Courses (the best 24 credits, and one from each of the four AoIs) 	
Business Core Courses (60 credits)	<ul style="list-style-type: none"> • ACCT1101 Introduction to Financial Accounting • ACCT2105 Introduction to Management Accounting • ECON1210 Introductory Microeconomics • FINA1310 Corporate finance • IIMT2601 Management Information Systems • MGMT2401 Principles of Management • MKTG2501 Introduction to Marketing 	<ul style="list-style-type: none"> • CAES9920 Academic Communication for Business and Economics Students • BUSI3801 Business Law • ECON1220 Introductory Macroeconomics or IIMT3635 Operations Management or IIMT3636 Decision and Risk Analysis I
Capstone Course (6 credits)		<ul style="list-style-type: none"> • STRA4701 Strategic Management
Disciplinary Elective Courses (24 credits)	<ul style="list-style-type: none"> • 12 credits of elective courses from the list of courses for major in Human Resource Management, Marketing or Wealth Management as prescribed in the BBA syllabus 	<ul style="list-style-type: none"> • 12 credits of elective courses from the list of courses for major in Human Resource Management, Marketing or Wealth Management as prescribed in the BBA syllabus
Advanced Level Courses (84 credits)	<ul style="list-style-type: none"> • the best 84 credits of advanced level courses in the first degree BENG 	
Global Elective Courses (12 credits)		<ul style="list-style-type: none"> • 12 credits of global elective courses from the list as prescribed in the BBA syllabus

FBE Elective Courses (12 credits)		<ul style="list-style-type: none"> • 12 credits of elective courses offered by the Faculty of Business and Economics <p>(Any credits in excess of final-year requirements completed under the BBA degree must be included and counted towards the honours classification)</p>
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Note: Candidates may refer to the "Regulations for the Degree of Bachelor of Business Administration (BBA) in conjunction with the Degree of Bachelor of Engineering (BEng)" and "Syllabuses for the Degree of Bachelor of Business Administration (BBA) in conjunction with the Degree of Bachelor of Engineering (BEng)" for the regulations, length and contents of courses for the double degree in BEng/BBA option.